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ABSTRACT

Presented is a collection of instructional program units, or mini-workshops, developed by the coordinators and resource personnel working in Project Talented and Gifted and used by students participating in the project at the elementary and secondary level. Sections on each topic usually cover objectives and outlines of each session in the workshop, materials needed, a bibliography of resources, suggested resource persons, topics for individual research, library skills needed, and modes of presentation. Included are units on such topics as physiology and heredity, electronics, solar energy, bicycle maintenance, animal behavior, ornithology, archaeology, meteorology, astronomy, statistics, and ecology. (IM)

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ESEA TITLE III

END OF GRANT REPORT
PROJECT TALENTED AND
GIFTED

Appendix IV

Part 1 of Two Bindings

Submitted to the

West Virginia State Department of Education

INSTRUCTIONAL PROGRAM UNITS

Language Arts, Science and Math
The Arts

EC100274

INTRODUCTION

The instructional program units contained under this cover were developed by the coordinators and resource personnel working in Project Talented and Gifted.

These units were used by students participating in the project.

MINI-WORKSHOP PROPOSAL

TITLE Physiology & Heredity AREA M & S NO

PROPOSED BY Mary Little DATE Spring 1976

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 8-10

OVERVIEW:

To familiarize students with basic nutrients needed to furnish energy to the human body and to demonstrate how to identify them. To familiarize students with four basic blood types and Rh factor in blood and to test for these. To familiarize students with some common human genetic traits and to test for these.

BLOOD

First Session:

MATERIALS	PRESENTATION	STUDENT ACTIVITY	TIME (Appr)
A. Introduction - Explain briefly why we need foods, and how the human body uses these foods. Then describe the 7 basic nutrients and importance of each in humans.	lecture		15 min.
B. Identification of starches, sugars, and protein using 3 simple lab tests. a. Iodine test for starch b. Benedict's Test for glucose c. Nitric acid-ammonium hydroxide test for proteins, (Provide each student with chart for recording results, (enclosed) No. 2)	-labortory activity -give passout explaining each test (enclosed No. 1)	laboratory work to test a different foods for starch, sugar, and proteins	35 min.
C. Compare results of tests. Draw general conclusions about nutrients found in various foods.	class discussion	compare individual findings	10 min.

Materials needed for workshop:

A. Written materials
   Enclosure No. 1 (1 per student)
   Enclosure No. 2 (1 per student)

B. Lab Materials
   Lugol's solution
   Benedict's solution
   Nitric acid
   Ammonium Hydroxice
   Microscope slides
   Hot plate
   Test tubes
   Test tube rack
   Tongs or tweezers

C. Foods to be used:
   Soybeans
   Wheat germ
   Wheat
   Cornstarch
   Potato starch
   Karo syrup
   apple
   Oatmeal
   Powdered sugar

Procedure for Laboratory Test for Nutrients

Enclosure #1

A. The Iodine test for starch
   1. Place a small amount of materials to be tested for starch on a microscope slide.
   2. Add a drop of iodine solution (generally called Lugol's solution).
   3. Blue-black precipitate confirms prosence of starch.

B. Benedict's Test for Glucose
   1. Place a small amount of material to be tested for sugar on a microscope slide.
   2. Add a drop of Benedict's solution.
   3. Heat the slide to boiling on a hot plate.
   4. Brick-red precipitate confirms the presence of glucose.

C. Test for Protein
   1. Place a small piece of material to be tested in test tube.
   2. Add a few drops of nitric acid.
   3. Pour off acid, rinse material being tested and drain.
   4. Add a few drops of ammonium hydroxide.
   5. Coloration will vary from deep purple to violet pink.

Second Session:

I. Material to be covered	Method of Presentation	Student Activity	Approximate time
1. Explain briefly the make-up of blood. Describe the 4 basic types of blood and what makes each one different. Describe Rh factor and it's effects on blood types.	lecture		20 minutes
2. Allow students to type their own blood using lab Aid Kit.	Discuss lab procedure	Make slides of blood sample and test for blood type.	20 minutes
3. (If time allows) test for Rh factor with lab Aid Kit.		Make slide of blood sample and test for Rh factor	20 minutes

II. Materials for Workshop

1. Lab Aids Incorporated Basic Blood typing, Cat. No. 1
2. Lab Aids Incorporated Rh blood typing Cat. No. 1a

III. Bibliography

See II. 1 & 2

Lee, Addison, "Biology, the Science of Life", Steek-Vough Company, Austin, Texas, 1964.

IV. 1. "What's your type?"
2. Brief explanation of blood types and actual laboratory typing of student's blood.

Third & Fourth Sessions:

I. Materials to be Discussed	Method of Presentation	Student Activity	Approx. time
1. Explain how genes carry genetic information.	lecture		10 min.
2. Explain dominant and recessive character-istics.	lecture		10 min.
3. Show how monohybrid; dihybrid crosses occur.	demonstration		10 min.
4. Have students do experi-ment to show how Law of Probability works.	lab	Lab activity- Students flip coins find common frequency of HH, Ht, tt test themselves and relatives for ability to taste PTC	30 min.

I. Materials to be Discussed	Method of Presentation	Student Activity	Approx. time
5. PTC test -(take home)	see enclosure		
6. Compare some easily identified human genetic trails	see enclosure	Using chart, determine if they are dominant or recessive for certain traits.	40 min.
7. Compare PTC test	class discussion	Compare findings	20 min.

II. 1. Lab Aid Kit cat. No. 7--Human Genetics Experiment
2. Chart of common genetic characteristics from Experiments in Physiology, Morrison-Cornett-Tether-Grotz, Holt, Rinehart and Winston, Inc., New York, New York, 1972.

III. Bibliography
1. Human Physiology. Morrison-Cornett-Tether-Gretz, Holt, Rinehart, Winston, Inc. New York, New York, 1972.
2. (see II.)

IV. 1. Human Genetics
2. Identifying common genetic dominant and recessive characteristics, and determining the probability of the frequency.

TOPICS FOR INDIVIDUAL RESEARCH

Several areas of human biology are now opened for further investigation by the children.

LIBRARY SKILLS

No special emphasis on this.

MOTIVATION AND REWARDS

Children will work in teams on all activities and team leadership will be rotated.

MODES OF PRESENTATION

Williams' Strategies 2, 5, & 14 will be used.

MINI-WORKSHOP PROPOSAL

TITLE Botany & Ornamental Gardening AREA S & M NO

PROPOSED BY Darrell Samples DATE Spring 1976

SESSIONS REQUIRED 5 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Grow Your Own Thing AGE RANGE 12-16

OVERVIEW:

To relate common house and garden plants to botany as a pure science. Cover ecology, natural selection, hybridization, and commercial values of various plants.

OBJECTIVES OF SESSIONS AND OUTLINE CONTENT

SESSION I

Objective: Know basic monocote characteristics, what soil is, what forcing flowers means, how to plant a bulb.

Materials: Three bulbs per student (pretreated), one 6" clay pot per student, potting soil, sand, perlite.

Outline:

1. Discussion of soil composition and mixing of soil.
2. Discussion of bulb structure and physiology.
3. Discussion of vernalization to force flowering.
4. Planting of Hyacinth in soil from (1.)
5. Discussion of typical monocote structure.
6. Question period.

SESSION II

Objective: To see how plants are raised professionally.

Outline:

1. Tour of actual greenhouse (Marshall University Greenhouse)
2. Discussion of greenhouse ecology.
3. Tour of greenhouse support systems and vernalization--growth chambers.
4. Question period

SESSION III

Objective: To know basic diocote characteristics. What grafting is, what air layering is used for, and why people propogate vegetativaly.

Materials: Typical diocote plant (i.e. geranium or coleus).

Outline:

1. Discussion of typical diocote structure.
2. Comparing diocote to monocote and taking common plants and classfying them.
3. Discussion of grafting purposes on diocotes.
4. Discussion of plant breeding in our modern society.
5. Question period.

SESSION IV

Objective: To offer practice on actual stems at bud and clift grafting. To offer practice at vegetative reproduction.

Materials: Thick and thin apple stems, razor blades, grafting was, paint brushes, large 'mother' plants for cuttings (i.e. geranium, coleus, wandering jew, etc.), rooting soil.

Outline:

1. Further discussion of grafting.
2. Practice cleft and bud grafting on stems.
3. Practice vegetative propogation.
4. Planting cuttings in sandy rooting soil.
5. Question period.

SESSION V

Objective: To review basic concepts of previous sessions and reenforce those concepts. To relate the plant kingdom overall to natural selection.

Materials: A thalophyte, a sporaphyte, and seed palnts (diocote and monocote) (i.e. liverwort, fern, geranium, amarylis, lilly).

Outline:

1. Review monocote--diocote relationships.
2. Discussion--observation of plant kingdom survey.
3. Discussion of natural selection of plants in the wild.
4. Question period.

MOTIVATIONS TO BE USED

The opportunity to learn and practice various techniques for propagating plants will provide sufficient motivation.

MODED OF PRESENTATION

Most of the teaching will be done in a greenhouse situation and will involve actual work by the children. Williams' Strategies 1, 2, 4, & 5 will be used.

BIBLIOGRAPHY

Landscape for Living: Yearbook of Agriculture 1972, U. S. D. A., 92nd Congress, 2nd session, House Document No. 229.

Botany, T. R. Alexander, R. W. Burnett, and H. S. Zim, Golden Press, New York, N. Y. 1970.

TOPICS FOR INDIVIDUAL RESEARCH

The history of decorative plants, techniques of plant propagation, and plant physiology are examples of a multitu-e of research possibilities.

TOURS AND COMMUNITY RESOURCES

The various flower shops, nurseries, and greenhouses of the area can serve as both tour locations and as resources.

RESOURCE PEOPLE RECOMMENDED

The best choice would be the person who manages the greenhouse at the local university. Other people could be the staff of other greenhouses, local garden clubs, or the State Department of Natural Resources.

LEADERSHIP ROLES TO BE PROVIDED

Each child will be given the opportunity to be a leader through rotating the leadership of the groups of children who are learning or practicing the various techniques covered in these sessions.

LIBRARY SKILLS TO BE EMPHASIZED

At the end of each session, the topic of the next session will be briefly described. The children will be encouraged to investigate this topic in the literature before the class session.

REWARDS TO BE OFFERED

The plants propogated by the children and the techniques learned through the propogation will be the rewards.

MINI-WORKSHOP PROPOSAL

TITLE Electronics AREA S & M NO

PROPOSED BY Charles Summers DATE Spring 1975

SESSIONS REQUIRED 3 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 14-16

OVERVIEW:

To expose students to some of the basic concepts of the study of electronics and to allow the children to carry out several experiments with electronic equipment.

ELECTRONICS

First Session: The Bohr theory of the atom will be briefly covered. Characteristics of the electron will be described. Various terms of the electricity and electronics will be defined. These will be volt, watt, amp, ohm, and resistors. The children will be supplied with different meters, resistors, and other components for electrical circuits and allow the children to design their own circuits and measure various features of these circuits.

Second Session: Description of AC and DC and a comparison of the two. Description of series and parallel circuit. Demonstration of semi-conductors, transistors, and oscilloscope. Children will be provided with necessary equipment to design circuits using semi-conductors and discovering how they work in a circuit.

Third Session: Children will be taken to the Marshall University electronics lab and will be shown some of the uses of the oscilloscope. They will be allowed to use the equipment of the lab under the supervision of the instructor and the lab assistants.

Materials Needed: Low voltage AC-DC power supply
Voltmeter, ohmmeter, ammeter
Oscilloscope
Switches and wiring
Semi-conductor, transistor, and resistor assortment
Light sets or buzzers

Bibliography of Resources: Marshall University Electronics Lab
The Scientific American Book of Projects for the Amateur Scientist.
Various high school and college level physics texts.

Ways ir Which Creativity is Encouraged: Children will be encouraged to explore different circuits designed by themselves. This will provide options for elaboration, fluency, originality, and flexibility in designing and testing the various circuits.

Topics for Individual Research: No special emphasis will be given to this, although there are many possible topics for self-initiated research.

Library Skills: No special emphasis on this.

Motivation and Rewards: The childrens' interest in this topic will provide sufficient motivation. As rewards, the children will see the results of their own work.

Leadership Skills: Lab work will be done in pairs with leadership rotated.

Modes of Presentation: Williams' Strategies 2, 5, 9, & 14 will be used.

MINI-WORKSHOP PROPOSAL

TITLE Soil Ecology AREA S & M NO

PROPOSED BY Edwin K. Berry DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Don't Call Me Dirt AGE RANGE 11-16

OVERVIEW:

To explore the interrelationships of life in the soil under us.

SOIL ECOLOGY OR SOIL: DON'T CALL ME DIRT

First Session:

Objectives -

1. Learn that soil is not just dirt but a complex mixture of rock particles, organic matter, and living organisms.

Outline -

I. The food we eat depends on the quality of our soil.

What is soil?

Students will probably present good composite answer from which to work.

rock particles
decaying plant and animal matter
living plants and animals

II. Where did the rock particles come from?

Have a couple pieces of sandstone to show how particles can be worn off.

Weathering by

wind water plants etc.

III. Does the soil feel like it is all rock particles?

What is in the soil that give its texture?

IV. Give each student a sample of soil and a magnifying glass.

Have the students examine the soil and list things they find.

V. Have the students construct a Berlese Funnel and set it up so our next session can see soil organisms.

Materials -

Soil samples
Magnifying glasses
Stero scope
Microscope
Ring stand
Glass funnel
Wire or strainer
Light
Collecting vial

Sources -

Teacher Guide to Conservation Education-Science 7-8-9
Brennan, Matthew, Ed, J. G. Ferguson
Publishing Co. Chicago, Ill. 1969

Second Session:

Objectives -

1. Follow up last week's session with a microscopic examination of soil organisms.

2. Learn to use a dicotymous key for identification of organisms.

3. Stress importance of soil organisms in nutrient recycling

Ecology:

Soil Session 2 Soil Organisms-So What?

Outline of Lesson:

I. Follow up last week's session by examining soil organisms microscop ically (low power).

Use organisms collected over the week's time by the Berlease Funnel. Note - If few organisms were collected have some fresh soil ready along with methyl cellulose to slow organisms.

II. Teach the students how to use a dicotymous key for identification. Using the key on p. 193 of Probing Levels of Life, Charles E. Merrill Publishing Company.

III. Soil organisms so what?

Why are these organisms important?

IV. If time allows:

a. Types of soil Particles Sand Silt Clay

b. Define Loan.

c. Plant some beans in each of the above types

d. Go out of the building and dig down into the soil to show layers.

Third Session:

Objectives -

1. To introduce the students a few of the first signs of spring.

2. To get the students out of the building and have them search for various signs of spring.

Outline -

I. Show students the following "signs" of spring

1. Flowers of water maple Acer saccharinium, the earliest bloomer in our area.

With magnifying glass have students examine the floral structures.

Compare male and female flowers.

2. Moss plants in sporophyte stage.

3. Early blooming wild flowers
salt and pepper, Henbit, etc.

4. Examine twigs of trees and study structures.

II. Take students to park area (1/2 mile from PACE Center) and walk through different types of habitats looking for signs of spring.

Fourth Session:

Objectives -

I. Have students name the senses.

II. *Go to the Huntington Galleries "Gentle Trail" and have the students proceed down the trail. Stop at information points and have the students shut their eyes and follow the instructions (teacher will read instruction given).

Senses employed at one location gave an excellent comparasion of two different species of comifersdone strictly by touch and smell.

*A nationally recognized Nature Trail designed for the blind.

III. At the end of the trail (behind the Galleries) we visited a small garden. The garden is planted with plants of tactile, taste or aromatic qualities in addition to their visual appeal. Have the students go through the garden with their eyes open and see if they employ their other senses.

Bibliography of Resources: Huntington Galleries
W. Va. Dept. of Natural Resources
National Wildlife Federation
Teacher's Guide to Conservation Education - Science 7-8-9 by Brennan, Matthew, and Ferguson
Probing Levels of Life by Charles E. Merrill Publishing Company.

Ways in Which Creativity is Encouraged: On the Gentle Trail children will be shown how to open their senses and take a different point of view on their surroundings. This will help develop their creativity.

Topics for Individual Research: Many topics in conservation, ecology, and nature studies will be open for further investigation by the children.

Library Skills: No particular emphasis on library skills.

Motivation and Rewards: Students will have no motivational problems because this session was requested by them. Rewards will come from within each student.

Leadership Skills: Explorations and toher activities will be done in pairs with leadership rotated.

Modes of Presentation: Williams' Strategies 2, 8, 10, 11, & 18 will be used.

MINI-WORKSHOP PROPOSAL

TITLE Solar Energy AREA S & M NO

PROPOSED BY Keith Hanger DATE Spring 1976

SESSIONS REQUIRED flexible - minimum of 3 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Let the Sun Do It AGE RANGE 12-16

OVERVIEW:

This unit will be primarily concerned with energy as it comes directly from the sun. The sun as the cause of energy of wind, wave, water vapor and organic materials will be explored, however.

I. OBJECTIVES OF SESSIONS

A. To encourage an appreciation of the potential of the sun to provide, without hazard or pollution, a significant percentage of the world's energy needs.

B. To provide information on methods, devices and techniques for capturing, storing and utilizing direct solar energy.

II. OUTLINE CONTENT

A. Solar History Highlights:

1. Legend has it that Archimedes fefended Syracuse by having solders stand in a semicircle on shore with polished shields and focus the suns rays on the sails of invading ships, setting them afire.
2. In 1774 Joseph Priestly focused the sun's rays on mercuric oxide, thereby releasing oxygen. Lavoisier, antoher early scientist, melted iron using a lens system to heat it.
3. In 1872, a solar distilling operation covering 51,000 sq. ft. of land was built in north Chile. The system used the greenhouse principle in which short wavelength light is admitted by glass but will not transmit the longer wavelengths which form upon striking matter (water) in the greenhouse. The water vapor formed in the greenhouses condensed on the sloping glass walls and trickled down to a trough. This system produced 6000 gallon of fresh water daily from salt water and was in operation for over 40 years.
4. The year 1878 saw sunlight focused on a boiler by a parabolic mirror to generate steam, which in turn operated a steam engine that powered a printing press.
5. At the present time solar energy is still largely experimental but with some practical application. Franch scientists are able to melt armor plate steel with their gigantic parabolic mirror located high in the Pyrenees and communications satellites are powered with solar cells.

B. Types of Solar Devices

1. Flat plate collectors
2. Lens systems
3. Greenhouses
4. Parabolic reflectors
5. Distillation endosures
6. Photovoltaic solar cells

C. Uses of Solar Energy

1. Space heating in homes and offices as well as factories and plants.
2. Water heating for hot water supplies wherever needed.
3. Steam generation to operate stationary steam engines that in turn power some kind of machine.
4. Distillation of salty or impure water. An ideal way to convert sea water to fresh water with a by-product of salt.
5. Direct generation of electricity using photo-voltaic solar cells.
6. Cooking and baking, especially in areas where fuel is scarce and sunlight is plentiful, e.g. India.
7. Melting metals and minerals. Soft metals routinely and hard alloys with sophisticated, large, solar installations. Fusing enamel to metal jewelry is one hobby application using an inexpensive lens.

III. MOTIVATIONS TO BE USED

A. Intellectual curiosity possessed by all gifted children in plenitude.

B. Novelty. Most young people have had little exposure to solar energy as a discipline or area for scientific inquiry, while at the same time getting an excess in the tanning ritual.

C. Utilitarian appeal. Much of what the student learns can be applied immediately either in an avocational way or as a practical source of free energy which is good for conservation of resources, both natural and monetary.

IV. MODES OF PRESENTATION

A. Introduction. Initially the stage will be set with a short oral presentation, accompanied by pictures, to give an overview and delineate the scope of the workshop.

B. A Plan for study will be agreed upon after listing potential projects, demonstrations and experiments.

C. Activities. The group will be actively engaged in the construction of working solar energy devices using many common materials ordinarily found around the home.
1. Solar furnace--to be made from an inexpensive Fersnel lens and scraps of lumber.
2. Solar cooker--made of heavy duty cardboard and alumimum foil.
3. Low voltage electricity generation--using photovoltaic solar cells and a low voltage electric motor to demonstrate the conversion of light to electricity.
4. Lunches will be cooked on the solar cooker on sunny days. If a solar oven is also constructed, bread and pastry may be baked.
5. Reading the literature. Students will be encouraged to read in the field of solar energy, especially periodicals such as Popular Science, Science Digest and Popular Mechanics which have in recent months begun to seriously investigate solar energy. Students will be asked to try to think of new ways of capturing, storing or tuilizing this free energy.

V. MATERIALS TO BE USED

A. Bibliography
1. Franklin M. Branley, Solar Energy (New York: Thomas Y. Cromwell Co., 1957).
2. B. J. Brimkworth, Solar Energy for Man (New York: John Wiley & Sons).
3. Farrington Daniels, Direct Use of the Sun's Energy (New Haven, Yale University Press, 1964).
4. D. S. Halacy, Experiments With Solar Energy (New York, W. W. Horton, 1969).
5. D. S. Halacy, The Coming Age of Solar Energy (New York: Harper & Row, 1963).
6. Joseph A. Merrigan, Sunlight to Electricity (Cambridge, Mass., M. I. T. Press, 1975).
7. Mother Earth News, Handbook of Homade Power (New York: Bantam Books, 1974).
8. Carol Hupping Stoner (ed.) Producing Your Own Power (Emmaus, Pa., Rodale Press, 1974).

9. E. G. Sterland, Energy Into Power, (Garden City, N. Y. Natural History Press, 1967).

B. Audio Visual
1. Opaque projector using books and periodicals.
2. Cardboard for projects (Solar Cooker)
3. Poster-board for projects (Solar Cooker)
4. Alumimum foil for projects (Solar Cooker)
5. Fresnel lens (Solar Furnace)
6. Radiometer to demonstrate energy conversion from sunlight to motion.
7. Solar cell (photovoltaic) and motor.
8. Distillation apparatus (greenhouse type)

VI. TOPICS FOR INDIVIDUAL RESEARCH

A. The making of a power source for a transistor radio using photovoltaic cells only.
B. Desert survival--making a water source from only a piece of plastic sheeting (3'x3') and a small container or cup.
C. Making a tin can stove (2 cans of different size, cardboard, alumimum foil, handiwrap, cotton or fiberglass.

VII. TOURS AND COMMUNITY RESOURCES

None available in this "new" field.

VIII. RESOURCE PEOPLE RECOMMENDED

None known in this area.

IX. LEADERSHIP ROLES TO BE PROVIDED

A. The opportunity to research some facet of the solar energy field and report on it to the group.

B. The opportunity to independently construct a solar energy device or model and demonstrate it to the group.

C. The chance to take what might be thought of as exotic skills and knowledge back to the student's respective school and become instrumental in furthering research into this benign resource.

X. LIBRARY SKILLS TO BE EMPHASIZED

A. Use of the card catalogue.

B. Use of the indices to periodical literature.

XI. REWARDS TO BE OFFERED

A. An increase in valuable information that has immediate practical application.

B. An expansion of career possibilities.

C. The novelty of eating solar cooked hamburger and hot dogs.

D. The novelty of eating solar baked cake.

E. The novelty of drinking solar distilled water from salt water.

F. Stimulation of intellectual curiosity and imagination.

MINI-WORKSHOP PROPOSAL

TITLE Chemistry AREA S & M NO

PROPOSED BY Carl McComas DATE Spring 1976

SESSIONS REQUIRED 4 SESSIONS LENGTH 2 hours

MOTIVATIONAL TITLE none AGE RANGE 11-13

OVERVIEW:

To acquaint children with some introductory work in chemistry and to allow the children to get a feel for conducting experiments utilizing chemicals that require careful handling.

CHEMISTRY

First Session:

Acids and Bases

I. Synthesis of an acid

A small amount of phosphorus pentoxide is thrown into a small evaporating dish of water. (CAUTION: harmful gases are given off. Do only in well ventilated area.)

II. Synthesis of a base

A small amount of sodium (about .125-.150 cm^3 is large enough) is thrown into a small evaporating dish of water. (CAUTION: hydrogen gas is generated. Reaction is very vigorous and may explode, igniting the hydrogen. Minimum safe distance is 2-3 m.)

III. Synthesis of a salt

A small coiled piece of magnesium ribbon (3-4 cm in length) is dropped into a test tube of 6M HCl or 2M H_2SO_4 solution. A lighted match is held over the top of the tube to demonstrate presence of hydrogen. (CARE: if reaction proceeds too vigorously do not use lighted match. Water can safely be used to dilute a reaction which is proceeding too vigorously. Do not stopper reaction vessel.)

IV. A. Bronsted-Lowry Theory
B. Lewis Theory
C. Comparison of one element theories with electronic theories
D. Hard Soft Acid Base Theory (HSABT) - mentioned briefly only to demonstrate its utility as a theory in predicting synthetic pathways

V. pH

A. Definition: $pH = -\log (H^+)$
B. Litmus paper
C. Indicator solutions

1. Crystal Violet	pH:	0-2.5	Yellow to purple
2. Methyl Orange	pH:	3.0-4.4	red to yellow
3. Bromo-Cresol Green	pH:	3.7-5.4	yellow to blue
4. Bromo-Cresol Purple	pH:	5.3-6.8	orange to purple
5. Bromthymol Blue	pH:	6.0-7.6	yellow to blue
6. Phenol Red	pH:	7.0-8.2	yellow to red
7. Phenolphthalein	pH:	8.0-10.0	colorless to light pink
8. Alizarin yellow	pH:	10.1-12.1	yellow to orange

Use spot plates with 1-2 drops of each indicator in test area. Test with varying dilutions of acids and bases, starting with 2M H_2SO_4 and 6M NaOH. Buffer solutions of pH 4, 7, and 9 were also used. Repeat testing until some definitive understanding of the use of indicators is gained. No real explanation of the mechanism of the color changes should be attempted.

VI. Applications: test pH, using indicators. of freshly squeezed orange juice and sliced apple.

Second Session:

OXIDATION AND REDUCTION

I. Blue Bottle: place equal weights of NaOH and glucose (3-8 g each) in a 500 ml Erlenmeyer flask 2/3 filled with water. Add a few drops of methylene blue and stir. With no explanation set the vessel aside. After solution turns colorless, ask what happened to the blue color. Shake the vessel and the blue color returns. Do not attempt an explanation of the redox processes involved.

II. Oxidation of metals
   A. Iron-display a rusty nail
   B. Copper-hold Cu gauze over a small flame (match) till black (CuO)

   Reduction of CuO: $CuO + H_2 \equiv\equiv\equiv Cu + H_2O$

   Reduction is considered too dangerous to be demonstrated.

III. Red Blue Clock Reaction: in a 250 ml beaker add 100 ml 2M H_2SO_4, 2.5 g Malic acid, 1.2 g KBrO3, 1.5 ml 0.1M $MnsO_4$, and 8-12 drops of ferroin indicator. 5-10 minutes of heating is often needed to initiate reaction. Color change is due to changing oxidation states of Mn, thus timing can be varied by changing the amount of $MnSO_4$. Do not attempt a definitive explanation of the transitions involved.

IV. Definitions

   A. Oxidation-increase in oxidation number and hence a loss of electrons
   B. Reduction-gain of electrons
   C. Half reactions-define oxidation states involved

V. Oxidizing volcano: to 2)-4) g $KMnO_4$ (dry) in an evaporating dish add 10-20 drops of glycerin. (CAUTION: do in well ventilated area. Asbestos paper directly under dish is helpful. Minimum safe distance is 1-2 m.)

Third Session:

ORGANIC CHEMISTRY

I. Nomenclature

   A. Simple aliphatic compunds: methane to dodecane
   B. Simple funtional groups: amines, alcohols, acids, and acyl halides
   C. Demonstration of some organic compounds:

Cinnamaldehyde	Vanillin	p-Xylene	Benzoic Acid	
Azobenzene	Cyclohexane	Menthol	Urea	Isopropanol

   D. Lipids, soaps, detergents, proteins, and polymers
   E. Importance of lipids and proteins in cell membrane structure

II. Synthesis of a detergent: sodium dodecyl sulfate

In a 250 ml beaker add 30-40 g dodecyl (lauryl) alcohol. Slowly and with stirring, carefully add conc. sulfuric acid until reaction is complete, then add 10% excess. Stir vigorously. Slowly and carefully add 18 M NaOH (with a few drops of phenolphthalein) until mixture is neutralized (light pink color from indicator). Azobenzene can be added at any point during the synthesis to color the detergent yellow. Heat, on a small hot plate, the mixture to drive off the excess water. Vacuum filtration, if available, is an alternative for removal of water. Cool on ice.

III. Synthesis of a plastic, Nylon 610

Prepare a 5% solution of hexamethylene diamine in water and a 5% solution of sebacoyl chloride in cyclohexane. In an evaporating dish mix equal amounts of the two solutions. Pull polymer into threads with a wire loop. Plastic may be colored yellow by the addition of azobenzene to one of the solutions before reacting.

Fourth Session: Children will be taken to the Marshall University Chemistry Department. They will be shown the general chemistry labs, analytical labs, physical lab, organic lab, research labs, stockroom, and various types of machines including IR's, a mass spec-GC, an HMR, and a mini-computer. A complete introduction to the Digital PDE-8/I computer will be conducted and the children will be allowed to play some of the games that are programmed in this computer.

Materials Needed:

Evaporating dishes
Spot plates
test tubes
Erlenmeyer flasks
250 ml beakers
Asbestos paper
Phosphorus pentoxide
Sodium hydroxide
p-xylene
Isopropanol
Methylene Blue
Malie acid
Ferroin indicator
Benzoic acid
Dodecyl (lauryl) alcohol
Sodium
Magnesium ribbon
Hydrochloric acid
Sulfuric acid
Orange
Apple
Crystal violet
Potassium permanganate
Azobenzene
Hexamethylene diamine
Rusty nail
Potassium bromate
Glycerin
Menthol
Sebacoyl chloride
Methyl Orange
Bromo-Cresol Green
Bromo-Cresol Purple
Bromthymol Blue
Phenol Red
Phenolphthalein
Alizarin Yellow
Cinnamaldehyde
Cyclohexane
Glucose
Copper gauze
Manganese sulphate
Vanillin
Urea

Bibliography of Resources: Marshall University Chemistry Department
Various high school and college level texts

Ways in Which Creativity is Encouraged: In the actual lab sessions, there will be little emphasis on creativity due to the dangerous nature of some of the chemicals being used. If the children have ideas that they wish to try, they will be encouraged to tell the resource person their ideas and if there are no hazards involved in the children's ideas, they will be allowed to try the experiment. During the last two hours, there will be opportunity for the children to express their creativity when playing games on the mini-computer.

Topics for Individual Research: The children will have been exposed to several different aspects of chemistry by the conclusion of these sessions. If any of the children express an interest in any chemistry related topics, they will be provided with a list of resources tailored to their own individual interests.

Library Skills: If children do express interests in independent research, they will need to know how to use the card catalog and other guides to materials available at a library.

Motivation and Rewards: Since this session has been requested by the students there will be no need for special motivation devices. There will also be no special rewards.

Leadership Skills: In performing the various lab exercises during this session, the children will work in lab teams with the chairmanship of the team rotating from week to week. This will give each child opportunity to be in a leadership position.

Modes of Presentation: Williams' Strategies 2, 5, & 14 will be used.

Tours and Community Resources: College and industry chemistry departments are good tour sites.

MINI-WORKSHOP PROPOSAL

TITLE Statistics: Analyzing Data AREA S & M NO

PROPOSED BY Caroline Thomas DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hr.

MOTIVATIONAL TITLE none AGE RANGE 11-16

OVERVIEW:

To introduce some basic terms and concepts in statistics. To make students more critical of the way statistics are used, especially in the news media.

STATISTICS: ANALYZING DATA

First Session: Basic Terms

Ask children first to complete a questionnaire to be used later. (attached) Start with two or three carefully planned distributions. (One nearly normal, one skewed, one bimodal) First define a few words -- distribution, population, sample. Using the data that is normally distributed, ask for ideas about how to describe this distribution. Students will probably come up with mean. Show by using skewed and bimodal distributions that the mean isn't always a good indication of what a distribution is like. Ask for ideas for other ways to describe distributions. With some leading, students ought to come up with:

1. graphs - bar, line, etc.
2. mode
3. median
4. some measure of distance bulk of points are from the mean

Compile some date from questionnaire, height, perhaps. Try to find ways to describe it building on what they have learned.
Before the end of class, try to arrive at a set of data for students to collect during week like:

1. Observe teacher -- how many times does she do some certain thing in an hour.

2. Observe at home --
   a. Number of glasses washed in a day (can be used to study correlation if linked to number of people in family).
   b. Number of hours TV is turned on in one day.

3. Observe at school

   a. Wear 2 different shoes and note how many people comment, look funny but don't mention it, appear not to notice, etc.
   b. Put sign on door "This door is closed". Check reactions. Ennumerate people in categories such as "walked by", "double take", "Opened door", etc.
   c. Similar to above with a box on table with sign "Do not open" or "This box is closed".
   d. Put box in cooridor or pathway. Write down how many walk around to left, to right, step over, move it.

4. Survey date -- Have everyone in your class in home school answer a question with numerical answer.

Before session II, compile data from questionnaires and have copies made for everyone in class.

Second Session: Standard deviation and probable error

Pass out copies of compiled data from questionnaire.
Compile data from homework project. Make graphs and calculate mean, mode, median.

Talk about usefulness of some measure of how close bulk of data is to mean. Ask for suggestions of a measure of this. One might be the % of

data which is within a given distance from mean. Calculate this for height data.

Give students formula for standard deviation. Calculate that for several distributions.

Error -- Using material from chapter 4 on error in How to Lie With Statistics, discuss how errors are introduced and how results should give some indication of how accurate information is.

Fourth Session: Distributions

Draw graphs of several of the distributions we have studied. Introduce the terms "bimodal", "multimodal", "skewed", "normal". Talk about some times when normal distributions occur.

Try an experiment. Have numbers from 1 to 10 in a box. Draw them 2 at a time and record the sum of each pair. If each student has his own set of numbers and records ten or so, a large number can be compiled quickly. This ought to resemble a normal distribution.

Discuss some ways statistics are misused.

(1) Studies with small groups of subjects are held until one happens to uphold the wanted thesis. Try an experiment -- toss a coin 10 times. If it comes up heads 8 times, say that proves coin will be heads 80% of the time. If it doesn't, try another time.

(2) Graphs can lie. One axis or the other can be stretched or the graph can be truncated. Use some illustrations from How to Lie with Statistics as visual aids.

(3) Discuss some articles which have appeared in the newspaper or magazines, trying to be critical about uses of statistics.

Third Session: Correlation:

Introduce need for correlation by showing two distributions which obviously have some relationship such as height and weight of students. How can we show this relationship? Should come up with a scatter plot of points each showing height (vertical axis) and weight (horizontal axis) for one student. Also graph a couple of other pairs of distributions.

Does correlation mean cause and effect? Introduce several examples from chapter on cause and effect in How to Lie With Statistics. See if students can discover fallacies.

This questionnaire can be used during the first session:

Please answer the following questions. If you are in doubt about an answer, guess.

1. How tall are you?____
2. How much do you weigh?____
3. How old are you?____
4. What is your grade in school?____
5. How many children live in your home?____
6. How many pets does your family have?____
7. How many miles or blocks from school do you live?

   _____blocks

   _____miles
8. How many minutes does it take for you to get to school?_____
9. Write down any number from 1 to 10._____
10. How many children are in your room at school? (Use homeroom if you are in junior high.) _____

Materials needed for workshop:

A. Chalkboard, paper and pencils.
B. Calculators
C. Attached questionnaire, reproduced so that there are enough copies for everyone in the class.
D. Overhead projector
E. Transparencies to be made from some newspaper clippings and drawings from a book.

Bibliography: How to Lie With Statistics, by Darrell Huff; Publisher: W. W. Norton & Co., Inc., 1954.

Ways in Which Creativity is Encouraged: The children can be encouraged to use what they have learned in these sessions to create their own imaginary report on a topic and use misleading statistics in this report. The other class members will be asked to point out the misleading statements that have been made.

Topics for Individual Research: No specific topics will be mentioned although there are several topics such as probabilities, economics, etc. that could be pursued.

Library Skills: No special skills will be involved.

Motivation and Rewards: Since this session has been requested by the children, there will be no motivation problem. Rewards could be offered in the form of a small trophy recognizing the children who make the most progress.

Children will be leaders by presenting their results on the various activities to the group.

Modes of Presentation

Williams' Strategies 2,4, and 5 will be used.

MINI-WORKSHOP PROPOSAL

TITLE Bicycle Maintenance AREA S & M NO

PROPOSED BY James Davis DATE Spring 1976

SESSIONS REQUIRED 5 SESSIONS LENGTH 1 hr.

MOTIVATIONAL TITLE Smokeless Machine AGE RANGE 9-11

OVERVIEW:

To teach safe cycling habits and routine maintenance procedures.

OBJECTIVES OF SESSIONS

Bicycling has emerged as the nation's leading participation sport. Even in this highly motorized country, bicycle sales have passed automobile sales. Yet the potential for increased use is only beginning to be realized. Medical authorities plead for a return to regular exercise to improve the health of our citizens. Widespread use of the bicycle as an alternative to the automobile and the use of public transport for travel to work and school would not only alleviate traffic jams and stifling pollution, it would be an ecologist's dream.

The economy of bicycle purchase and use makes it a fine investment. Its speed and versatility make it an efficient choice for short-range personal transportation. As a vacation and leisure time sport, it has no equal. It is because of the above reasons that it is important to educate the youth of this country in the areas of bicycle safety and maintenance. With a basic understanding of these fields they will be able to more fully enjoy the art of cycling and its many derivative advantages.

It is hoped that this group of sessions will present important insights to cycling through practical application of proper maintenance and safety procedures.

OUTLINE CONTENT

SESSION ONE

The Ecology of Bicycling / The Bicycle and You

I. The Ecology of Bicycling:

- A. Advantages of the bicycle for transportation
  1. no polution
  2. healthy
  3. simple operation
  4. less serious accidents
- B. Disadvantages of the bicycle for transportation
  1. poor road conditions
  2. hilly or mountainous area
  3. poor climate
  4. long distances
  5. age
  6. traffic
- C. Solutions
  1. gearing and efficient bicycle operation
  2. paddle cars or "people powered vehicles"
  3. special cycling roads or regulated areas

II. The Bicycle and You

- A. Buying a bicycle (see hand-out)
  1. proper size
  2. personal need
  3. location and geography
  4. price
  5. dealing with salesmen (role playing)
  6. buying tips

B. Fitting the bicycle to you
   1. handlebar stem vs. seat elevation and proper spacing for arm and upper body length
   2. seat elevation and tilt
   3. handlebar elevation and tilt
   4. lever position

SESSION TWO

Maintenance and Troubleshooting (part 1)

I. Periodic Maintenance
   A. Monthly
   B. Semiannual
   C. Annual

II. Tire Maintenance
   A. Inflation
   B. Types of tire damage
   C. Clincher tire repair
      1. hot-patch repair
      2. cold-patch repair
      3. installing tire and tube

III. Chain Maintenance and Repair
   A. Removal and inspection
   B. Cleaning and lubricating
   C. Replacing a link
   D. Adjusting chain length and tension

IV. Cable and Lever Maintenance
   A. Brake cables
      1. removal and installation
   B. Shift-control cables
      1. removal and installation of stem and frame mounted lever controls

V. Brake Adjustment

VI. Derailleur and Internal Gear Adjustment

VII. Inspection Before Riding

SESSION THREE

Maintenance and Troubleshooting (part 1)

I. Wheel Maintenance (major)
   A. Replacing single spoke
   B. Tensioning spokes
   C. Lacing wheel
   D. Trueing wheel
      1. jig
      2. on bike

II. Freewheel Maintenance (major)
  A. Removing, cleaning, inspecting, replacing
  B. Overhauling (wheel body and sprocket cluster)
  C. Service procedures

III. Hub Maintenance (major)
  A. Overhauling both front and rear hub
  B. Inspection
    1. pitted cones
    2. bent axel
    3. bearings

IV. Crank Maintenance (major)
  A. Overhauling
    1. cottered
    2. cotterless
  B. Inspection
    1. pitted cones
    2. bent axel
    3. bearings
    4. bottom bracket

V. Headset Maintenance
  A. Adjustment
  B. Overhaul
  C. Insepction
    1. bearings and races
    2. pitting
    3. fork threads

VI. Derailleur and Brake Overhaul

SESSION FOUR

Safe and Serious Cycling

I. Rules for Safe Cycling
  A. Traffic regulations
  B. Right of road
  C. Straight-line cycling
  D. Alert; listen
  E. Right of way?
  F. Street crossings
  G. Audible Signal
  H. "Hitching"
  I. Control
  J. Mechanical safety
  K. See and be seen

II. West Virginia State Laws Governing Bicycles
   A. Traffic laws of W. Va.
   B. Number of persons on bike
   C. Clinging to vehicles
   D. Riding on roadways and bicycle paths
   E. Lamps and toher equipment

III. Bicycle Safety Program Test
   A. Governor's Highway Safety Administration

IV. Bicycle Inspection Checklist
   A. Governor's Highway Safety Administration

SESSION FIVE

Practical Safety Application

I. Governor's Highway Safety Administration
   A. Bicycle safety booklet

MOTIVATIONS TO BE USED

The opportunity to learn proper maintenance techniques will provide sufficient motivation to the children.

MODES OF PRESENTATION

Presentation will be done through brief demonstrations and by then allowing the children to work on sample bicycles on their own. These bicycles can be "fixed" so that Williams' Strategies 1, 4, 10, & 14 can be used.

BIBLIOGRAPHY OF CYCLING BOOKS

Bridge, Raymond. Freewheeling: The Bicycle Camping Book. Harrisburg: Stockpole Books, 1974.

Coles, C.W. and Glenn H.T. Glenn's Complete Bicycle Manual. New York: Crown Publishing Company, 1974.

Cuthbertson, Thomas. Anybodies Bike Book. Toronto: Random House of Canada, Ltd., 1972.

Cuthbertson, Thomas. Bike Tripping. Berkeley: Ten Speed Press, 1972.

Delong, Fred. Delong's Guide to Bicycles and Bicycling. Radnor: Chilton Book Company, 1974.

Henderson, N.G. Continental Cycle Racing. London: Pelham Books, Ltd., 1970.

Lyttle, Richard B. The Complete Beginners Guide to Bicycling. New York: Doubleday & Company, Inc., 1974.

Messenger, Charles. Conquer the World. London: Pelham Books, Ltd., 1971.

Saunders, David. Cycling in the Sixties. London: Pelham Books, Ltd., 1971.

Sherman, Steve. Bike Hiking. New York: Doubleday & Company, Inc., 1974.

Warren, A.A. North American Bicycle Atlas. Delaplane: American Youth Hostels, Inc., 1973.

PERIODICALS

"Bicycling"
CM Publications
PO Box 3330
San Rafael, Ca.
94901

"Cycling"
JPC Specialist Press
166 Fleet St.
London, England

"Bike World"
World Publications
PO Box 366
Mountain View, Ca.
94040

"Bicycle Spokesman"
Hub Inc.
PO Box 955
119 E. Palatine Rd.
Palatine, Ill.
60067

TOPICS FOR INDIVIDUAL RESEARCH

The children will be encouraged to look into the history of bicycles and bicycling. They will also be directed to books dealing with bicycle mechanics and safety.

TOURS AND COMMUNITY RESOURCES

Tours could be arranged to the various bicycle repair shops in the area and these shops could also serve as community resources. The local police department is also a good resource. If there are any local cycling clubs, they can be of help.

RESOURCE PEOPLE RECOMMENDED

Employees of bike shops, members of cycle clubs, police department.

LEADERSHIP ROLES TO BE PROVIDED

In each of the sessions involving practical application of maintenance and safety skills, each child can be provided with leadership roles.

REWARDS TO BE OFFERED

Upon completion of the class each child will be given a patch and a certificate from the Governor's Highway Safety Administration.

MINI-WORKSHOP PROPOSAL

TITLE Chemistry AREA S & M NO

PROPOSED BY Carl McComas DATE Spring 1975

SESSIONS REQUIRED 3 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Beginning Chemistry AGE RANGE 8-10

OVERVIEW:

To acquaint children with some introductory activities in the study of chemistry and to allow the children to experience the feeling of creating new substances from materials that are quite different from the product of their combination.

BEGINNING CHEMISTRY

First Session:

I. Definitions

A. D=m/v
B. Everyday instances and applications of density

II. Determination of density of a liquid

With a 10 ml graduated cylinder determine the mass and volume of water. Calculate the density. Repeat using carbon tetrachloride. (CAUTION: use CCl_4 only in well ventilated area.)

III. Determination of density of a solid

Determine mass of zinc. Measure displaced volume of a liquid in a 10 ml graduated cylinder. Calculate the density. Repeat using lead and magnesium.

Second Session:

COLORS

I. Chemiluminescence

Prepare a mixture of 4.0 g hemoglobin, 4.0 g sodium perborate, 30.0 g trisodium phosphate, and 30.0 g sucrose. Divide mixture into two equal quantities. To one add 0.1 g fluorescein and to the other add 0.1 g rhodamine B. Fill two beakers with 250 ml water. To one beaker add 5 g of mixture A and add 5 g of mixture B to the other beaker. The fluorescein solution "glows" green whereas the rhodamine B solution "glows" pink.

II. pH

A. Indicator
B. Indicator solutions

1.	Crystal violet	pH: 0-2.5	yellow to purple
2.	Methyl Orange	pH: 3.0-4.4	red to yellow
3.	Bromo-Cresol Green	pH: 3.7-5.4	yellow to blue
4.	Bromo-Cresol Purple	pH: 5.3-6.8	orange to purple
5.	Bromthymol Blue	pH: 6.0-7.6	yellow to blue
6.	Phenol Red	pH: 7.0-8.2	yellow to red
7.	Phenolphthalein	pH: 8.0-10.0	colorless to light pink
8.	Alizarian yellow	pH: 10.1-12.1	yellow to orange

Use spot plates with 1-2 drops of each indicator in test area. Test with varying dilutions of acids and bases, starting with 2M H_2SO_4 and 6M NaOH. Buffer solutions of pH 4, 7, and 9 were also used. Repeat testing until some definitive understanding of the use of indicators is gained. No real explanation of the mechanism of the color changes should be attempted.

Third Session:

ORGANIC CHEMISTRY

I. Synthesis of a detergent: sodium dodecyl sulfate

In a 250 ml beaker add 30-40 g dodecyl (lauryl) alcohol. Slowly and with stirring, carefully add conc. sulfuric acid until reaction is complete, then add 10% excess. Stir vigorously. Slowly and carefully add 18 M NaOH (with a few drops of phenolphthalein) until mixture is neutralized (light pink color from indicator). Azobenzene can be added at any point during the synthesis to color the detergent yellow. Heat, on a small hot plate, the mixture to drive off the excess water. Vacuum filtration, if available, is an alternative for removal of water. Cool on ice.

II. Demonstration of some organic compunds:

Cinnamaldehyde	Vanillin	p-Xylene	Benzoic Acid	
Azobenzene	Cyclohexane	Menthol	Urea	Isopropanol

III. Synthesis of a plastic, Nylon 610

Prepare a 5% solution of hexamethylene diamine in water and a 5% solution of sebacoyl chloride in cyclohexane. In an evaporating dish mix equal amounts of the two solutions. Pull polymer into threads with a wire loop. Plastic may be colored yellow by the addition of azobenzene to one of the solutions before reacting.

Materials Needed:

10 ml. graduated cylinders	250 ml. beakers	Zinc chunks
Magnesium pellets or ribbon	Trisodium phosphate	Fluorescein
Crystal violet	Bromo-creosol green	Phenol red
Alizarin yellow	Sodium hydroxide	Azobenzene
p-Xylene	Cyclohexane	Urea
Hexamethylene diamine	Carbon tetrachloride	Electric hot plate
Hemoglobin	Sodium perborate	Sucrose
Rhodamine B	Methyl orange	Bromo-creosol purple
Phenolphthalein	Sulphuric acid	Dodecyl (lauryl) alcohol
Vanillin	Benzoric acid	Menthol
Isopropanol	Sebacoyl chloride	

Bibliography of Resources: Marshall University Chemistry Department
Various high school level chemistry texts

Ways in Which Creativity is Encouraged: Since this session will be using some hazardous chemicals and due to the ages of the children involved, any investigations or experiments conducted during this session will have to be closely supervised. This will limit the children's creative expression to concepts that can be expressed in a verbal or written form. The children will be encouraged to express their thoughts, feelings, and impressions and will, if time permits, be allowed to create their own experiments under the supervision of the resource person.

Topics for Individual Research: Children will be encouraged to go to the library and check out books on simple chemistry experiments that can be performed using household substances.

Library Skills: The children will have to become familiar with the card catalog in order to be able to find books dealing with chemistry.

Motivation and Rewards: The children will be motivated through having the opportunity to conduct the various experiments outlined in this unit. The experiments have been selected because they produce dramatic results which will stir the children's interest in chemistry. No special rewards are planned.

Leadership Skills: In doing lab work the children will work in teams and team leadership will be rotated.

Modes of Presentation: Williams' Strategies 2, 6, 10, and 14 will be used.

MINI-WORKSHOP PROPOSAL

TITLE Animal Behavior II AREA S & M NO

PROPOSED BY Stan Maynard and Cindy Abbott DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 8-16

OVERVIEW:

To continue the investigations undertaken in Animal Behavior I and to open new areas of investigation into the study of animal behavior.

ANIMAL BEHAVIOR II

First Session: Children will be taken to Blue Barn Boarding Kennel to observe domestic animals and their behavior patterns. The animals that will be observed are horses, cattle, dogs, cats, geese, and ducks. John Smith, the owner of the kennel, will demonstrate some aspects of animal training and behavior modification of animals.

Second Session: Children will be asked to select a topic involving the behavior of some type of animal and begin researching this animal to present their results to the class during the fourth session. For this session, a representative of the local Audubon Society will be requested to present some aspects of the behavior of birds.

Third Session: A local veterinarian will be requested to speak to the children on the topic of animal diseases with an emphasis on how diseases can influence the behavior of animals. If it is not possible to schedule a veterinarian for this session, the children will be taken to the Marshall University Biological Sciences laboratory facilities to observe experiments being conducted with small animals.

Fourth Session: Children will report on the results of their individual research. They will be encouraged to use any method of presentation that they feel would be suitable for them. The other children will be encouraged to ask questions that may occur to them during the course of an individual's presentation.

Materials Needed: Materials needed will depend on the individual needs of the children during the preparation of their report.

Bibliography of Resources:
National Wildlife - Magazine
Audubon - Magazine
a willing veterinarian
a willing Audubon Society member
Blue Barn Boarding Kennels or an equivalent person skilled in animal training
Marshall University Dept. of Biological Sciences

Ways in Which Creativity is Encouraged: Children will select their own topic, research it, and present it in whatever manner they feel would be appropriate. This opens several aspects of creativity to the children.

Topics for Individual Research: Since the children will be told to select their own topics for research, there is no way of telling what topics might be chosen. Some of the likely topics would be animal communication, animal defenses, animal migration, etc.

Library Skills: To be able to locate materials for the reseach on their individual topics, the children will need to be able to use the card catalog, the various guides to periodicals, and the facilities of a multi-media resource room.

Motivation and Rewards: Since this session will be offered after Animal Behavior I has been taught, motivation will present no problem. The research and the actual observation of animals should privide sufficient motivation for the children who may need motivation. There will be no special emphasis on rewards.

Leadership Skills: By presenting the results of his research to the rest of the children in this session, each child will gain leadership experience during the time that he is presenting his research topic.

Modes of Presentation: See Animal Behavior I.

Tours and Community Resources: See Animal Behavior I

Possible Resource People: See Animal Behavior I

MINI-WORKSHOP PROPOSAL

TITLE Animal Behavior I AREA S & M NO

PROPOSED BY Stan Maynard DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 8-16

OVERVIEW:

To acquaint children with some of the aspects of the behavior of wild and domestic animals in the world around them.

ANIMAL BEHAVIOR I

First Session:

A. The concept of ecological relationships should be discussed and developed. This is done to establish a foundation of the basic requirements of all living things. The following concepts should be developed:

1. Shelter: Various examples should be shown.
2. Reproduction: Balance of nature
3. Survival: feeding; definse; migration; balance of nature, the effect of the heart on being "warm blooded" or "cold blooded"

B. Two important questions that should be included in the first session should be:

1. What animals do you want to observe with respect to animal behavior.

2. What is the most curious animal, to you.

Second Session: This session should include examples of what you developed in Session I. Various examples should be illustrated either by first hand observation or by Audio-visual aids. An example of something that can be utilized could be as follows:

Materials - The Language of the Wolves (Record) Narrated by Robert Redford (Side #1)

Objective - To illustrate the complex nature of one of our most valuable yet fast disappearing preditors.

Concepts that this record relates to the student:

1. Communication of the howl
2. Misleading concepts of wolf behavior -
   example: There is no known instance of wolf killing a man.
3. Seven years is the average life span.
4. Live in packs.
5. Never kills for the thrill of it.
6. Kills the old and weak.
7. Wolf is a wander and its success is because of his trait, and not because he is a good hunter.
8. May trot at 5 miles/hour for at least 1/2 an hour.
9. Successful in its catches of pray in less than 7% of its attempts

10. "Alpha Wolf" - The leader wolf.

11. Yound at birth - 1 pound

    a. Male carries food back to young
    b. At two months the young leave the den and move to a litter site
    c. One mumber of the pace becomes a "baby-sitter"

12. Body Language -

    a. the manner it positions his tail:
       Threat
       Surrender
       Position in Pack
    b. Facial expressions:
       Puzzlement
       Threaten
       Pleasure
    c. Sound:
       Growl
       Bark (alarm, challenge)
       Howl: Proclaims territory
             Never on same note
             Never for the same length of time
             Re-unites the pack

Third Session: This session should be devoted to some practical observation. The following procedure may be found helpful for this purpose:

1. Take the students outside and assign them to a plot of ground 10' x 10'
2. Ask the students to investigate the area and state:
   a. the animals observed
   b. why were they there
      1. protection
      2. Food
      3. other areas discuss in session #1.
3. Show the students a flowering garden and relate the following behavior modification capabilities found there:
   How does the flower or blossoms change animal behavior?
   Possible responses:
      1. pollen
      2. fragrances
      3. colors

Fourth Session: Bring various small animals to this session and allow the children to observe these animals for a portion of the session. After this observation period, ask the children to report what they have observed and to compare their observations with the observations of other children in the session.

Materials Needed: Record player, ten foot tape measure, pencils, paper, various small animals.

Bibliography of Resources: National Wildlife - magazine
International Wildlife - magazine
The Language of the Wolves - record
Marshall University Dept. of Biological Sciences
Various pet shops in the area

Ways in Which Creativity is Encouraged: I'm asking the children to explain why they thought that certain things took place, there is an opportunity for the originality of the children to be utilized.

Topics for Individual Research: Although there will be no special emphasis on this, there will be the opportunity for children to pursue their individual interests in the behavior of animals after this session has been concluded.

Library Skills: No special emphasis on this topic.

Motivation and Rewards: Motivation will be accomplished by allowing children to express their own ideas and conclusions about things that are taking place in this session and by allowing them to actually observe animals in artificial and natural surroundings. There will be no special attempts to provide rewards.

Leadership Skills: Be having children prepare their own observations and relate these observations to the other children in this session, leadership skills will receive attention.

Modes of Presentation: Williams' Strategies 2, 3, 5, 7, and 14 will be used.

Tours and Community Resources: Veterinarians' offices, nature trails, college biology department, State Department of Natural Resources, Izaak Walton League, Boy Scouts, and kennels are all resource or tour possibilities.

Resource People Recommended: A dog trainer or a college biology graduate student would be two good choices for resource people.

MINI-WORKSHOP PROPOSAL

TITLE Computer Programming AREA S & M NO

PROPOSED BY Caroline Thomas DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE How to Talk to a Machine AGE RANGE 11-13

OVERVIEW:

To introduce the methods used to program and utilize computers.

OBJECTIVES

I. Knowledge
   A. To understand a little of what a computer is and how it works.
      1. Names of some logical parts.
      2. How information is stored and moved.
      3. How limited it is (as alphabet is limited)
   B. To learn a little of programming techniques and how programming languages work.
      1. Learn the CARDIAC instructions and use them.
      2. An introduction to the concept of assemblers and compilers.
      3. Techniques
         a. Decision blocks
         b. Loops
         c. Instruction modification

II. Skills
   A. An introduction to using a programming language
   B. Some practice in analyzing a problem, that is, breaking it down into component parts.

OUTLINE CONTENT

First Session:

1. Define a computer as a fast moron, for which you must define a problem previsely. Use analogy of telling your little brother to take out the garbage if you had to tell him, "Turn right. Walk ten steps. Bend over, Lift the garbage. Stand up straight. Turn around 180°. Walk 4 steps, turn left, etc."

2. Show a flowchart (in the CARDIAC instruction book) of changing a flat tire. Go through the flowchart.

3. Write a flowchart for adding two numbers. Teacher will have to do most of this because students won't have much idea of how to proceed. (There is a flowchart in the CARDIAC booklet).

4. Write a flowchart for reading two numbers and writing them out, smallest first. Students should be able to do part of this one.

5. If there is time, try a flowchart for reading three numbers and writing them out smallest first.

Second Session:

1. Give each student an envelope containing a CARDIAC. Tell them to assemble the apparatus.

2. Talk a little about how a computer process instructions. Now write a program for adding two numbers from the flowchart developed last week. Have each student copy the program onto his CARDIAC.
   Now simulate a computer processing this problem by together working through each step on the CARDIAC. Try to make students see how the instructions are processed, instead of following directions by rote.

3. If there is time have students try to write a program to read two numbers, subtract the second from the first, and write the answer.

Third Session:

Get out the flowchart for reading two numbers and writing them smallest first. Have students work together to write a program to do this.

Now try the program on CARDICA.

This will be their first of transfer of control. Make sure students understand.

If there is time try the same problem with three input numbers.

Fourth Session:

Present a problem: Add together one hundred numbers on input cards and write the sum.

Have students work together to make a flowchart. They will come up with a straight-forward, very long flowchart. Point out that if they wrote this program, it wouldn't even fit in memory of CARDIAC.

Show students how to use a loop to process the input and point out that this is used very often. (Do this by writing a flowchart).

With the teacher acting only as a secretary, have students write a program for CARDIAC from the flowchart. (If there is time they can try it on their CARDIAC.)

Now tell about how assemblers were developed to get the computer to do some of the busywork of programming.

On the same display where program was just written, rewrite the program in an assembly language to demonstrate how much easier it is.

Now tell about compilers and similarly write the program in a high level language.

Materials Needed: Blackboard or paper easel, paper and pencils, CARDIAC for each child.

Bibliography of Resources: Bell Telephone Co. for CARDIAC, a Bell System Educational Aid
Marshall University Math Dept.

Ways in Which Creativity is Encouraged: As children become familiar with CARDIAC they will be encouraged to produce their own "programs" for their own use. This will allow them to create a unique program to suit their own needs.

Topics for Individual Research: The topics of number theory, computer technology, computer languages, etc. will be available for further research by the individual student.

Library Skills: To conduct any individual research, the children will need the skill of effectively utilizing the card catalog and the periodical indexes.

Motivation and Rewards: Self-motivation on the part of the children due to their interest in this topic. As a reward, the children will be allowed to keep their own CARDIAC.

Leadership Skills: In making and using CARDIAC, leadership will be rotated so that each child can experience being a leader.

Tours and Community Resources:
The computer department of the local university and the facilities of the various area businesses can be used.

Resource People Recommended: The best resource people would be students in the math or business departments of the local university.

MINI-WORKSHOP PROPOSAL

TITLE Natural Living AREA S & M NO

PROPOSED BY John and Barbara Williamson DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Back to the Land AGE RANGE 10-16

OVERVIEW:

A look at the way life was and is without modern conveniences.

OBJECTIVES OF SESSIONS

To expose participants to alternative life-styles--without value judgement--in areas such as uses of materials and energy; foods and eating; jobs; health; entertainment. To encourage thoughtful evaluation.

or

To expose participants to options of greater simplicity of life-style, in areas such as uses of time, energy and materials; foods and eating; work; health; and entertainment. To encourage thoughtful evaluation.

OUTLINE CONTENT

First session:

Use of materials, time, energy

1. What is "simplicity"? Is it a value worth seeking? "Gadgets" - when do they hinder?
   Re-cycling: discuss concept
   examples you know of it being done
   more possibilities
   What would an ["ecological" style of life be?
   [Ecologically sound

2. Bring in materials for patchwork and for rug-brading (re-use of materials)
   Materials needed:
   - Several cardboard patterns
   - scissors
   - material
   - needles, thread (heavy, for rug)
   - cotton batting
   - several books on traditional patchwork

3. Introduce next theme: food
   a. Preparation: drying, canning, sprouting
   b. What are some of the new directions in eating-habits?
   c. A look at vegetarianism - pro & con - bring in your well-based opinions!
   d. We will cook a simple meal together next time.

Second Session:

Foods -

What determines our food habits?

habit
health
expense

discuss complementary foods
other?

A look at vegitarianism, from several aspects

health]
morality] pro & con

preference]
St. Paul] individual differences
other]

Prepare a simpel meal using the materials that we have on hand.

Third Session:

Construction and Health

Building your own home (possibly my husband would come tell how be built a log cabin)

Life without electricity-gas-"conveniences"

Is it possible?
Is it desireable?

Health

Importance of preventative medicine: good eating habits
Uses of herbs, teas, folk-medicines

Childbirth

"Natural"]
homebirth] (perhaps omit?)
mid-wifery]

Appreciation for modern medicine and hospitals: discuss

Fourth Session:

1. Why "Back to the Land"? Why simplicity?

2. Entertainment - without T. V.

   Discuss:
   - quality of life
   - what is morally - ecologically - sound?
   - how do we determine this?
     - in terms of what is best for most people?
     - what is best for all of life?
     - religious reasons
     - what leads to peace?

   discuss any leftover interests - concerns -
   - jobs?
   - schools?
   - communes/community?

   Entertainment without T. V.
   materials: phonograph
   record
   a. listen to mountain-music: traditional
   b. share our own music - any style at all
   c. learn song (Shaker tune)

Bibliography of Resources:
Beyond the Rat Race (values)
Back to Eden (food and medicine)
Diet for a Small Planet (food)
Foxfire I
Foxfire II

Ways in Which Creativity is Encouraged: Children will be encouraged to create their own braid or patchwork designs to use in making their own things.

Topics for Individual Research: Areas of lifestyles of past generations will be opened for further investigation by the children.

Library Skills: No special emphasis on this topic.

Motivation and Rewards: Motivation will be through the children's own interest in this session. The preparation of various things by the children will also serve as a motivating force. There will be no special rewards.

Leadership Skills: No special emphasis on this topic although leadership activities could be designed into the first, second, or fourth session by allowing different children to be group leaders during the various activities.

Modes of Presentation: Williams' Strategies 2, 3, 5, and 6 will be used.

Tours and Community Resources: Various arts and crafts fairs and exhibits would offer good opportunities to see things as they once were.

Resource People Recommended: People who have returned to a simpler life style or old people who can remember and describe the way things were are good resource people.

MINI-WORKSHOP PROPOSAL

TITLE Terrarium Building AREA S & M NO

PROPOSED BY Toulouse Kellam DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 8-16

OVERVIEW:

To give students an opportunity to learn about and build terrariums.

TERRARIUM BUILDING

First Session: Each child will be given a copy of Gardening With Terrariums. An introduction of the terms used when discussing terrariums will be given. The different types of terrariums will be described. Children will assist the instructor in making a terrarium.

Second Session: Children will be taken to the Plant House, a local store that specializes in plants suitable for terrariums. The owner of the store will describe the plants and answer the questions of the children.

Third Session: Children will be taken to a local park and will be allowed to collect various plants for use in their terrariums. Children will be told to bring their containers for their terrariums to the next session.

Fourth Session: Students will design and build their own terrariums in the containers that they provided.

Materials Needed: Fifty pounds of smooth gravel, one small bag of sphagnum moss, five pounds of activated charcoal, fifty pounds of topsoil, two large bags of perlite, various clear or colored containers, twelve copies of Gardening With Terrariums.

Bibliography of Resources: Gardening With Terrariums by Rex Mabe
Gardens Indoors
Terrariums and Miniature Gardens
local greenhouse
local park or wooded area

Ways in Which Creativity is Encouraged: Each child will be free to design his own terrarium in whatever manner appeals to his own tastes. This will encourage the child's originality, elaboration, and flexibility.

Topics for Individual Research: The areas of plant care, ecology, and designing may be opened by this session.

Library Skills: No special emphasis in this session.

Motivation and Rewards: A display of different types of terrariums and various pictures of terrariums that have been collected from magazines will be used for motivation. The child's reward will be his completed terrarium.

Leadership Skills: When the children are collecting their plants and designing and building their terrariums the leadership will be rotated so that each child can be a leader.

Modes of Presentation: Williams' Strategies 2 and 18 will be emphasized.

MINI-WORKSHOP PROPOSAL

TITLE Fossils AREA M & S NO

PROPOSED BY Charles Summers DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Life in the Past AGE RANGE 8-10

OVERVIEW:

To acquaint the children with the formation of fossils and to open the area of archaeology to them.

FOSSILS - LIFE IN THE PAST

First Session: Using the Larousse Encyclopedia of Archaeology several areas of archaeology will be discussed with the children. Some of these questions and the page on which the answers is found are: Is archaeology in conflict with life, (p. 26); How do things survive, (p. 40); How to locate a site, (p. 57); and Establishing dates, (p. 95). For each question, children will be given ample time to discuss among themselves the various possibilities. The film Fossils: Clues to Prehistoric Times will be shown during this hour.

Second Session: A relic from a past civilization will be brought to this session. Using only their senses and their minds, the children will be asked to determine as much as they can about the civilization that produced the object. After this, the children will be shown a collection of various fossils from the distant past and will have the various fossils described to them.

Third Session: The children will be taken to a nearby stream which has shale and coal deposits along its banks and the children will be allowed to hunt for fossils on their own. As fossils are found, they will be identified. Children will be asked to try to make their own fossils.

Fourth Session: The children will be taken to the Geology Museum at Marshall University and will be allowed to explore the various displays located there.

Materials Needed: Collection of rocks and minerals, movie projector.

Bibliography of Resources:
Larousse Encyclopedia of Archaeology
Fossils by Palmer
Fossils by Matthews
Fossils: Clues to Prehistoric Times or an equivalent film
Marshall University Geology Museum

Ways in Which Creativity is Encouraged: Children are asked to theorize on the basis of one sample of a civilization and are asked to create their own fossil.

Topics for Individual Research: Many opportunities for further study will be left up to each child.

Library Skills: No special emphasis on library skills.

Motivation and Rewards: Since the course has been requested, motivation should not be a problem. The opportunity of finding and identifying a fossil and the opportunity to create a fossil are sufficient rewards.

Leadership Skills: The children can operate as teams in searching for fossils.

Modes of Presentation: Williams' Strategies 6, 9, & 14 will be used.

Tours and Community Resources: Marshall University, Huntington Galleries, and West Virginia Archaeological Society are resources. Any location that has fossils is a possible tour site.

MINI-WORKSHOP PROPOSAL

TITLE Genetics AREA S & M NO

PROPOSED BY Terry McMahon DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 11-13

OVERVIEW:

To give the children an introduction into genetics and heredity and to provide them with the necessary skills so that they may conduct their own genetics experiments.

GENETICS

First Session: To give the children an introduction into genetics and heredity and to provide them with the necessary skills so that they may conduct their own genetics experiments.

Second Session: The children will be shown how to properly care for cultures of Drosophila. They will also be shown how to determine the sex of the fruit fly and how to recognize different variations. The students will each be given a starting culture and will be asked to perform certain matings and observe and tabulate the results for the next session. The exact matings to be performed will depend on the starting culture and can be determined by consulting any high school level biology text.

Third Session: The children will report the results of their past week's experiments. A discussion of these results will lead to the discovery of dominance and recessiveness and will set the stage for the next task. The students will be given another starting culture which will be fruit flies that are hybrids of various sorts and the students will be assigned other matings to perform before the next session.

Fourth Session: The students will report the results of their past week's experiments. A discussion of their results will lead them to discover some of the various ratios that occur in genetics and what these ratios mean. Each child will be given a final culture of fruit flies and will be encouraged to continue genetics experiments on his own.

Materials Needed: Magnifying glass, pair of tweezers, culture bottle, and killing bottle for each child. Various cultures of Drosophilamelanogaster. Nutritional media for Drosophila.

Bibliography of Resources: Cell Division, a film by Brice, or a comparable film
Various high School level biology texts.
Biological Sciences Dept. of local college or university.

Ways in Which Creativity is Encouraged: The children will be encouraged to use their imagination in designing experimental matings of the fruit flies and observing the results.

Topics for Individual Research: Topics could include further experiments with Drosophila, a study of the history of genetics, a study of heredity in other organisms, or a variety of other related topics.

Library Skills: The child will have available many sources of information on genetics and heredity. If a child wishes to conduct further investigations into genetics and heredity he will be directed to the local public library or to the university library to seek out any relevant information.

Motivation and Rewards: Motivation will be accomplished by the fact that this session was requested by the students themselves. Being given live specimens and being responsible for the care of these speciemns and for the actual conducting of the experiments will also help in motivation.

Leadership Skills: No specific leadership skills are emphasized by this session.

Modes of Presentation: Williams' Strategies 4, 5, 9, 10, & 14 will be used.

MINI-WORKSHOP PROPOSAL

TITLE Ornithology AREA S & M NO

PROPOSED BY David Buie DATE Spring 1976

SESSIONS REQUIRED open SESSIONS LENGTH open

MOTIVATIONAL TITLE none AGE RANGE all

OVERVIEW:

To develop an interest in and an understanding of the various forms of bird life around us.

ORNITHOLOGY

First Session: The children will be shown some filmstrips on birds. These will be provided through the National Audubon Society local chapter. The children will be taught how to use binoculars and will be tuaght how to use a camera with a telephote attachment.

Second Session: The children will be taught how to develop the film that is to be used in the camera and they will be given the opportunity to take some pictures through the telephoto lens.

Third and Subsequent Sessions: These will be field sessions where the children will be given the opportunity to observe, identify, and photograph birds in their natural habitats.

Materials Needed: Camera with tripod and telephoto lens, film for camera, darkroom facilities, binoculars for each child, field guide for each child.

Bibliography of Resources: National Audubon Society
Marshall University Biological Sciences Dept.
Field Guide to the Birds by Roger Tory Peterson

Ways in Which Creativity is Encouraged: The children will have the opportunity to explore various methods of photography and to become skilled in selecting potentially interesting pictures of birds.

Topics for Individual Research: The topics of flight, photography, conservation, ecology, and others could be utilized by participants in this session.

Library Skills: The children will learn to use a field guide skillfully.

Motivation and Rewards: The motivation will be accomplished through the child's own interest in this session. Rewards will be an increase in the ability to recognize various birds, the opportunity to photograph these birds and to develop their own photographs.

Leadership Skills: The tasks of photographing and developing can be assigned on a rotating basis and the leadership of the field trips can also be rotated through the group with different responsibilities assigned to each group member.

Modes of Presentation: Williams' Strategies 2, 7, 9, & 18 will be used.

Tours and Community Resources: Huntington Galleries, Marshall University, & Tri-State Audubon Society are good resources. Any location can be a tour site.

Possible Resource People: Contact your local chapter of the National Audubon Society.

MINI-WORKSHOP PROPOSAL

TITLE Archaeology AREA S & M NO

PROPOSED BY Jim LeMaster DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Buried Treasure AGE RANGE 11-16

OVERVIEW:

To give the children a deeper understanding of archaeology and the work of an archaeologist.

ARCHAEOLOGY: BURIED TREASURE

First Session: Discussion of previous civilizations of this area, using materials from the State Archaeological Society. The film: The Archaeologist and How He Works will be shown. After the film, questions will be encouraged.

Second Session: Students will discuss the proper techniques to use in conducting a dig. An arrowhead collection will be provided and the students will make their own artifacts from flint by using the pressure flacking method.

Third Session: Students will be taken to a dig at Lesage where they will put what they have learned to work. They will work in teams of two.

Fourth Session: A continuation of the third session.

Materials Needed: Movie projector, arrowhead collection, flint.

Bibliography of Resources: W. Va. Archaeological Society
Marshall University Geology Department
The Archaeologist and How He Works or equivalent film

Ways in Which Creativity is Encouraged: Each student will create his own artifacts and will be free to explore new techniques for excavating at the dig.

Topics for Individual Research: Many opportunities for research are open in the areas of cultures of the past, geology, archaeology, etc.

Library Skills: No particular library skills will be emphasized.

Motivation and Reward: Children are self-motivated since the requested that this session be offered. Their reward will be to participate in an actual archaeological dig.

Leadership Skills: Teamwork at the dig will indirectly assist the development of leadership skills.

Modes of Presentation: Williams' Strategies 4, 5, 9, & 14 will be used.

Tours and Community Resources: Huntington Galleries, Marshall University, and West Virginia Archaeological Society are good resources. Any location where artifacts can be found is a good tour site.

MINI-WORKSHOP PROPOSAL

TITLE Human Physiology AREA S & M NO

PROPOSED BY John Lackey and Jim Konieczny DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 11-16

OVERVIEW:

To provide children with an understanding of physiology and what it encompasses. To provide children with experiences that will allow them to investigate some physiological aspects of the human body. To produce a desire for further independent study of the physiology of the human body.

HUMAN PHYSIOLOGY

First Session: A general introduction to physiology. A definition of the terms physiology and homeostasis will be drawn from the students' own concepts of these words. A definition of the different organ systems of the human body will also be produced by the students.

Second Session: Students will be given an introduction to the circulatory system of the body. They will be taught how to take blood pressure and what this means. After this, they will be encouraged to think of different things to do and see how these activities influence blood pressure. When these activities are completed, the students will compile and compare their results. The students will also be given the opportunity to type their own blood.

Third Session: Studnets will be given an introduction to the respiratory system of the body. They will be taught how to use a hymograph or an equivalent instrument and will be taught the uses of this instrument. They will then be encouraged to devise different activities and to see what the hymograph indicates as the results of these activities. The students will compile and compare their results.

Fourth Session: Students will be taken to the Marshall University Physiology Laboratory and will be allowed to observe and/or assist in some physiology experiments using laboratory animals. The students will be encouraged to continue their own independent study in the area of physiology.

Materials Needed: Four stethescopes, four sphygomanometers, one basic blood typing kit, one Rh typing kit, two kymographs or equivalent instruments.

Bibliography of Resources: Physiology by Guyton
Clinical Diagnosis by Lab Methods by Todd and Stanford
Human Physiology by Morrison, Cornett, Tether, and Gratz
Marshall University Dept. of Biological Sciences

Ways in Which Creativity in Encouraged: The students will be asked to design their own activities for use with the different pieces of lab apparatus. This will encourage their originality and their fluency.

Topics for Individual Research: Many aspects of human and animal physiology will be available for independent study and research at the conclusion of these sessions.

Library Skills: The students will need to have an understanding of how to use the card catalog and the various periodical indexes in order to carry out independent study and research. They will also need to know how to locate resources in the multi-media room of the library.

Motivation and Rewards: The children will achieve motivation and experience intrinsic rewards from the activities designed to let them learn more about their bodies. They will feel a sense of accomplishment when they have designed and carried out their own physiological experiments.

Leadership Skills: In compiling and comparing the results of their experiments, each child will have the opportunity to become temporary leader of the session. This will also happen when the children are designing and conducting their own experiments.

Modes of Presentation: Williams' Strategies 2 & 5 will be used.

Tours and Community Resources: Local hospitals and university biology department are good tour and resource sites.

MINI-WORKSHOP PROPOSAL

TITLE Meteorology AREA S & M NO

PROPOSED BY Charles Summers DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 11-13

OVERVIEW:

To acquaint children with some of the instruments used by meteorologists, the different ways that a meteorologist gathers information, and how the meteorologist interprets his observations.

METEOROLOGY

First Session: This session will center on clouds. The film "When Air Masses Meet" by Cenco and a set of slides by Hubbard Scientific Company will be used. The children will learn the different types of clouds and what type of weather is generally associated with each cloud type. Each child will be asked to observe the clouds between this and the next session and will be asked to record their own weather predictions based on the cloud type and to compare their predictions with the actual weather during this period.

Second Session: The class will be taken to the weather station at Tri-State Airport. On the way there, the results of the attempts at weather prediction will be compared and the children will have a chance to see how accurate they were as a group. When the children are at the weather station they will be shown the various data gathering instruments and will have the use of each instrument explained to them. Each child will then be given a copy of a recent weather map and will have the different symbols described for them. Each child will be asked to pick one of the instruments and to find out how the instrument could be cheaply built for an amateur weather station. The children will report their results at the third session.

Third Session: Each child will make his report on a weather instrument. A list of materials will be prepared and the materials will be brought to the fourth session. Each report will be duplicated so that each child can have a copy of all reports for his own use. The children will be shown the film "Origins of Weather" which shows the importance that the sun, the atmosphere, and the nature of the planet have on the weather.

Fourth Session: The children will build the various weather instruments that they planned during the third session. When the instruments have been built, the children will select a location and set up a weather station which can be used in future sessions.

Materials Needed: This will depend on the instruments that the children choose to build.

Bibliography of Resources: "When Air Masses Meet" a film by Cenco.
Slides on clouds by Hubbard Scientific Co.
Weather station at Tri-State Airport
"Origins of Weather" a film
Marshall University Physical Science Dept.

Ways in Which Creativity is Encouraged: When the children are keeping records of their weather predictions based on clouds, their creative processes may be involved. When the children are producing plans for the various weather instruments they will be free to explore any method that they choose in order to make something that will produce the desired results.

Topics for Individual Research: The children will need to do some research to get pointers on the construction of their weather instruments. They will also have to do research to find out how to interpret the meaning of the things that they are measuring about the weather. After the weather station has been put into operation it will become the responsibility of the children to maintain it, and this will lead to further independent research into weather.

Library Skills: The children will need to know how to find materials and resources in the library in order to be able to do the independent research needed for this project.

Motivation and Rewards: The films, the trip to the weather station, and the construction of our own weather station will provide motivation and rewards for the children during this session.

Leadership Skills: In selecting the location for our weather station and in planning and building the instruments for this station, there will be several opportunities for the children to develop their leadership abilities.

Modes of Presentation: Williams' Strategies 2, 8, & 9 will be used.

Tours and Community Resources: U. S. Weather Station and Marshall University are good tour and resource sites.

MINI-WORKSHOP PROPOSAL

TITLE Astronomy AREA S & M NO

PROPOSED BY W. Benton Brubeck, Jr. DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 11-13

OVERVIEW:

To allow children to make observations of the universe around them.

First Session:

Lesson I - Objects and groups of objects in space and distances between them.

Objective: When students have completed the class discussion and exercises, they should be able to differintiate between planets and stars; solar system and galaxy; and galaxies and universe. They should also be able to demonstrate the parallax method of finding space distance and be able to find the distance to the sun after having experimented with the material provided.

Course Outline: The class will begin with a discussion using the inquiry method to acquaint students with above mentioned terms and also to find out the things they may not be familiar with.

First Student Activity: If the day is not cloudy, the class will measure the distance to the sun in the following way: (A) Form a sharp image of the sun with a magnifying glass on a screen (or sheet of paper). (B) Measure the diameter of the image as accurately as possible. (C) Measure the distance from the lens to the screen (or paper - being careful not to look at the sun).
From geometry we know: $\frac{\text{Diameter of sun}}{\text{Diameter of image}} = \frac{\text{Distance to sun}}{\text{Distance to image}}$
Assume the sun's diameter to be 1 million miles for very approximate calculations, or 864,000 miles if more accuracy is desired.
Use the equation to find the sun's distance -
$\text{Distance to sun} = \frac{(\text{Diameter of sun})\ (\text{Distance of image})}{\text{Diameter of image}}$

Second Student Activity: Demonstrating Parallax. We will build in class a model which can be used to measure the distance to an object across the room, using the same principal involved in finding the distance to some of the nearer stars using angles of sight and the diameter of the earth's orbit as the base of a triangle. Although it is necessary to use the sine trigonometric function to find a result, trig tables will be provided, as will calculators, and even if the students have had no previous training in using these functions, it will be interesting, since the formula will be provided and they can look up the values in the tables and compute an answer which can be directly measured to check for accuracy.

Materials needed for 1st activity:

4 magnifying glasses (2-3")
1 movie screen
4 rulers or tape measures
calculators
paper and pencil

Materials for 2nd activity:

4 cardboard squares about 1 ft. sq.
8 rulers
8 protractors
8 popsicle sticks
Scotch tape
Thumbtacks
Calculators
Pensils and paper
Trig tables

Second Session:

Lesson II - Stars: What they are, how they "live" and "die".

Objective: To acquaint students with the life cycle of stars.

Course Outline: After beginning the class and telling the students what the topic for the day is, I will ask them to try to formulate a method whereby they would try to see if stars did indeed have a life cycle. After hearing and discussing their answers to that question, I would ask them the following question: "Imagine yourself to be a Martian who has never seen a human being. You have been given a million photographs taken randomly of human beings of all ages all over the earth. How many theories about the life history of a human being could you work out that would fit these pictures? Compare this problem with that of working out the life history of a star or of a galaxy."

Student Activity: In groups of two, the class will design a Hertzsprung-Russel Diagram. This diagram plots a star's luminosity (absolute magnitude) against its temperature classification. After exploring the various meanings of these factors, we will plot the path of a typical star in its life cycle across the diagram.

Materials needed for Student Activity:

Paper	Rulers
Pencils	1 overhead projector, screen and Marker

Third Session:

Lesson III - The Sun: Its characteristics and how we study them.

Objective: By the end of this lesson, the student should know some information about the various layers of the sun and how the sun operates. After completing the activities, the student will see how to measure the width of the sun, what a spectr is and know how to make a diagram of the sun.

Course Outline: The class will begin with inquiries to find out how much the students know about the sun. After passing out sheets of drawing paper and either painting equipment or crayons, we will proceed to draw a layer-by-layer diagram of the sun, all the while discussing various interesting applicable facts about the sun.

First Student Activity: The class will make a "sun camera" from cardboard boxes with pinholes in them and sheets of paper pasted inside. The image that results is very similiar to the one done the first week with the magnifiying glass. Using the sun camera, it is also possible to use the same formula that was used in the first activity to find the width of the sun:

$$\frac{\text{width of image}}{\text{length of box}} = \frac{\text{width of sun}}{\text{distance from sun}}$$

Second Student Activity: Comparison of Spectra. If the sun is shining the day of class, each group of two students will project a spectrum of sunlight onto a sheet of paper and observe it. Then they will project a spectrum of the light given off by the lamp in a filmstrip projector and compare it with that given off by the sun. While this is going on, or shortly thereafterwards, we will discuss the fact that different elements, when set aglow, give off a distinctive spectrum of their own, and also that when starlight passes through a cloud of gas, certain wavelengths of light are absorbed, thus identifying the gas with a dark-line or absorption spectrum.

Materials needed for first activity:

4 medium sized cardboard boxes with lid flaps removed
4 sheets typing paper
pins
rulers
tape
calculators
pencil and paper

Materials for second activity

8 prisms
filmstrip projector(s)
paper (typing)

Fourth Session:

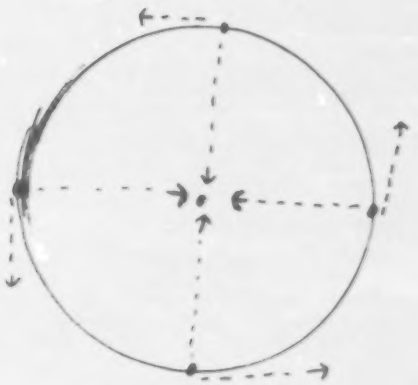
Lesson IV - The Solar System - Discussions on how it formed and what holds it together.

Objective: When the lesson has concluded, students will have an understanding of how scientists believe the solar system formed and through the activities, will be able to demonstrate a knowledge of what orbits are and why they exist.

Course Outline: The class will begin with a discussion of the origin of the solar system. Since the students will already be familiar with the way stars form, it is hoped that they will be able to deduce through class discussion the most popular theory of solar system origin - The Nebular Theory.

First Student Activity: Seeing what an orbit is. Using a long pencil eraser, tie onto it some twine. Whirl it around your head slowly and notice what sort of path it takes. Now thread the twine through an empty thread spool and tie a heavy washer on the other end of the string. Begin the eraser whirling again, this time holding onto the spool. Observe what happend to the weighted length of the string as you try to spin the eraser faster, or, if you allow it to slow down.

Second Student Activity: Inertia. Take a glass and a marble. Put the marble in the glass and hold the glass down on the table on its side with the opening toward you. PUsh the glass away from you and observe what happend to the marble. Now do the same thing with the opening of the glass away from you, noting what happens to the marble this time. At this time, the definition of inertia will be introduced to the students: The tendency of objects at rest to stay at rest and the tendency of objects in motion to continue moving in a straight line. The fact that one body orbits another is a combination of the body's inertia and the pull of the gravitational forces between the bodies. At this point, the students will design a diagram showing these combinations of forces. It should end up looking something like this:



- - - - - =force

_____ = resultant path

The drawing of the above diagram will constitute the 3rd activity.

Fourth Student Activity: Now the class will construct an elipse which demonstrates a more accurate picture of the earth's orbit about the sun. To do this, they will need a piece of cardboard about 1 foot square, some paper clips, a pencil, and string. Both an elipse and a circle can be drawn in this manner so they can be compared. We will discuss foci of elipses and try to figure out why the earth moves faster in part of its orbit than it does in other parts.

Materials for Leson IV:

1st activity -

kite twine
⬭ - shaped pencil erasers (any object could be used, but these are soft enoughnot to hurt anyone and can be used later for their intended purpose)
spools
heavy washers

2nd activity

enough glass or plastic cups for each person
enough marbles for each person

3rd activity

one sheet of drawing paper for each student
pencils or markers in two colors for each person

4th activity

8 sheets "shirt" cardboard 1 foot square
8 pieces string (kite twine) 10" long
16 paper clips
pencils in two colors

Bibliography:
Devlin, John F.; Halburg, Charles J. A., Jr.; and Trimble, Harold C., Intermediate Algebra With Trigonometry, Scott Foresman & Co. (Glenview, Ill., 1972).
Inglis, Stuart J, Planets, Stars, and Galaxies - An Introduction to Astronomy, John Wiley and Sons, (New York O 1967).
Namowitz, Samuel N., and Stone, Donald B., Earth Science - The World We Live In, American Book Co., New York, 1969.
Parker, Don H., and others, Solar System Laboratory, Science Research Associates, Inc., Chicago, 1965.
Wolfe, Caleb W. and others, Earth and Spaces Science, D. C. Heath and Co., Lexington, Mass., 1971.

Topics for Individual Research: Possible topics might include solar flares, planets, trigonometry, other stars, etc.

Library Skills: No special emphasis on this.

Motivation and Rewards: Children are self-motivated since they requested this session. Rewards would be the satisfaction received from carrying out the exercises in this session.

Leadership Skills: In performing the various activities the groups of children will rotate leadership roles.

Tours and Community Resources: Startips from Kanawha County Schools, Marshall University, and Huntington Galleries.

MINI-WORKSHOP PROPOSAL

TITLE Statistics: Analyzing Data AREA S & M NO

PROPOSED BY Nancy Harbour DATE Spring 1976

SESSIONS REQUIRED 5 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 12-16

OVERVIEW:

To investigate statistical research in today's world.

OBJECTIVES OF SESSIONS

To show the value of statistical research in today's world. To give an overview of the different measures used to analyze data and the importance of correctly evaluating data.

OUTLINE CONTENT

Statistics: Analyzing Data

First Session: Development of Statistics

Ask students to complete a questionnaire for later use. Include a brief history of the development of statistics, humorous incidents involving the misuse of statistics, and important quotations from non-mathematical persons who regarded statistics as a valuable tool for gauging information. Also discuss the three major areas of statistics today: descriptive statistics, inferential statistics, and Associational Statistics. As a part of the first introductory lesson, discuss the meaning of a distribution, population, and sample, and show different types of distributions. Finally, include material on probability theory (such as outcomes of a pair of dice) and ask students to bring examples on the misuse of statistics from either a text, newspaper article, or television presentation and discuss the inherent flaws in the examples.

Second Session: Investigating Mean, Median, and Mode

Several terms will be introduced in this discussion: the array, ungrouped frequency distribution, and grouped frequency distribution will be described as means of organizing and summarizing data. Rules of summation for statistical data will be given. The idea of central tendency will be presented, and the advantages and disadvantages of the mean, median, and mode as ameasurement of central tendency will be investigated for the array, the ungrouped frequency distribution, and the grouped frequency distribution. Also, the formulas for calculating each of the three for the three given methods of organizing data will be given and calculated for the various situations.

Third Session: Standard Deviation

Standard deviation will be examined as a method of determining the extent to which data is distributed, bunched, or spread. Also, the students will be shown why the average of the deviations about the arithmetic mean cannot be utilized as a measurement of variation. The standard deviation will be calculated for selected distributions and various shortcut methods for calculating the standard deviation by employing the rules of summation for statistical data will be shown. The students will be asked to derive these formulas, as a better working knowledge of statistics can be gained through such efforts.

Fourth Session: Uses of Statistics in Business

At this point the various applications of statistics to the business world will be investigated. Topics to be covered will be the value of statistical research in project planning, budgetary and inventory planning and control, quality control, marketing, personnel administration, finance, accounting, investment management, and insurance.

Fifth Session: Misuses of Statistics

An important step in acquiring statistical skills is the recognition of incorrect and inadequate evaluation of numerical data. "Pitfalls" that will be examined are: defective data, unrepresentative samples, unfair comparisons, unwarrented conclusions, confusion of correlation and causation, and frequently made mathematical errors.

This questionnaire can be used during the previous sessions:

Please answer the following questions:

1. How old are you?_____
2. How tall are you?_____
3. How many club offices do you hold?_____
4. Are you planning on "going away" to college?_____
5. How many cars are in your family?_____
6. How many rooms does your house have?_____
7. In which month were you born?_____
8. How many are in your family?_____
9. How many pets does your family have?_____
10. Write down any number from 1 to 10._____

LEADERSHIP ROLES TO BE PROVIDED

Each child will be given the opportunity to be the data analyzer for the group.

MOTIVATIONS TO BE USED

This session was requested by the students, therefore no special motivation was used.

MODES OF PRESENTATION

Workshop format was used. Williams' Strategies 4, 5, and 10 were used.

MATERIALS NEEDED

A. Paper and pencils.
B. Calculators.
C. Attached questionnaire, reproduced so that there are enough copies for everyone in the class.
D. Text examples of misuses of statistics.

BIBLIOGRAPHY

1. How to Lie With Statistics, by Darrell Huff, Publisher: W. W. Norton & Co., Inc., 1954.

2. Elementary Social Statistics, by Kenneth J. Downey.

3. Flaws and Fallacies in Statistical Thinking, by Stephen K. Campbell, Publisher: Prentice-Hall, Inc., 1974.

4. Practical Business Statistics, by Frederick E. Croxton and Dudley J. Cowden, Publisher: Prentice-Hall, Inc., 1956.

TOPICS FOR INDIVIDUAL RESEARCH

The students are encouraged to pursue investigation of career possibilities of statistics in business, behavioral psychology, and other endeavors.

TOURS AND COMMUNITY RESOURCES

The math department of the local university could be the site of a tour. The psychology, math, biology, and education departments could be resources.

LIBRARY SKILLS TO BE EMPHASIZED

The children can be requested to research articles in periodicals and find uses of statistics and present the findings to the group.

REWARDS TO BE OFFERED

A small trophy can be awarded to the student making the most progress.

MINI-WORKSHOP PROPOSAL

TITLE Speed Arithmetic AREA S & M NO

PROPOSED BY Betty Johnson DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 8-10

OVERVIEW:

To learn multiplication by a short and quick process: the Trachtenberg System of Speed Mathematics.

SPEED ARITHMETIC

First Session:

Trachtenberg's Background: Born in Odessa - June 17, 1888 - graduated with highest honore from Berginstitut (Mining Engin. Instit) of St. Petersburg. Then he went to work in the Obuschoff shipyards. Was named Chief Engineer while he was in his 20's.

Trachtenberg was a dedicated pacifist. At outbreak of World War I, he organized the Society of Good Samaritans. This trained Russian students to care for the wounded.

With the murder of the imperial family in 1918 - his peaceful life ended. As communist swept Russia - he spoke out against savergy and lawlessness. He had to flee Russia for Germany.

Married a woman of the aristocracy. With Hitler's coming, this life was one of great strife. He spoke out against fascism. At first, Hitler ignored him, but later he was marked for removal.

He fled from Germany to Vienna. The Germans marched on Vienna. He was seized and put in prison. He managed to escape and fled to Yugoslavia. His freedom was short lived. He was captured and sent back to prison.

The concentration camp was noted for brutality. Prisoners were punished severly.

To keep from losing his mind - he developed a system of numbers - something logical and orderly. He had no books, pencils or paper. He organized his system in his mind. He managed to get scraps of paper and scribbled his theories down.

In 1944, Trachtenberg learned he was to be executed. He sorted all his work and taught it to a fellow prisoner whom he trusted. (What do you think happened to him!).

His wife bribed the guards to have him transferred to another camp. Conditions here were very bad. There was no room for prisoners to lie down. From here he escaped. He had no passport or papers of any kind. Once again, he was arrested. He was sent to Trieste - and put to work breaking rock. Guards were more lax.

His wife bribed guards to take messages to him. He managed to escape from here and went to Switzerland.

Here he gained strength. He was an old man - he taught his method to a group of retarded children. They learned to do problems successfully by his method.

Pause at certain place - have children speculate about what happened in prison, when he escaped, or was recaptured.

Teach multiplication by 11, 12, 6, and 7 during this session.

Second Session: Review multiplication by 11, 12, 6, and 7. Teach multiplication by 5, 9, 8, and 4.

Third Session: Review multiplication by 11, 12, 6, 7, 5, 9, 8, and 4. Teach multiplication by 3, 2, 1, and 0.

Fourth Session: Review multiplication by all numbers covered in session. Give a "final exam" and present certificates to the children who do an exceptional job. During this entire unit allow the children to help one another learn the various processes and ask them to teach someone else the system.

Materials Needed: Paper and pencil. Stencils, or some other way of producing worksheets for children.

Bibliography of Resources: The Trachtenberg Speed System of Basic Mathematics by Ann Cutler and Rudolph McShane

Ways in Which Creativity is Encouraged: By allowing children to speculate on possible outcomes of events in Trachtenberg's life their creativity will be spurred. Also, by teaching someone else, their creative process will be opened.

Topics for Individual Research: The children may desire to find out more about Trachtenberg and they may want to find out how to use his system to multiply and add more complex numbers.

Library Skills: Not emphasized by this session.

Motivation and Rewards: Intrinsic motivation since this was requested by students. Intrinsic rewards through a feeling of accomplishment as children master different processes. Extrinsic reward in the form of certificates of merit.

Leadership Skills: By placing each child in the role of a teacher, leadership will be enhanced.

MINI-WORKSHOP PROPOSAL

TITLE Computers AREA S & M NO

PROPOSED BY Rick Collins DATE Spring 1976

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Introduction to Computers AGE RANGE 10-16

OVERVIEW:

To give a capsule picture of how computers function.

OBJECTIVES

To first give an example of how a computer learns by making and then collectively programming the computer. Then to follow up with the hardware comprising a data processing system, flowcharting and basic programming concepts.

OUTLINE CONTENT

First Session: Matchbox Computer

The purpose of this session was to demonstrate the manner in which a computer learns. This being that when faced with a choice of operations, it must have a built in condition to perform the right decision. The match box computer was simply a series of matchboxes representing all possible game situations that may occur when playing Hexapawn. This game is played on a 3x3 board and each player (one of which is the series of matchboxes or our computer) has 3 "chess pawns" on the back row. With the objective being eigher to force a stalemate or reaching your opponents back row, the purpose of understanding how a computer learns was soon realized. The built in condition for our matchbox computer was that whenever the computer lost a game, it would remove from its choices of moves that one made just prior to the loss.

Proceeding in this manner, each student took his turn playing the "computer". In a very short time we found that by programming the computer, what was once an "easy" opponent was now a very experienced foe; unbeatable in fact if the "computer" moved second. Attached are passouts on the possible game situations and the method of randemly selecting the "computer's" response.

Second Session: Hardware

Here we examined the physical machinery common to all data processing systems. Namely, the different types and features of input and reading devices, the compiler and its components, and the various output devices.

Third Session: Software:

First we discussed the steps in solving a problem. Beginning with a good problem definition, and then apply flowcharting techniques. Then we examined some "jobs" which I had done in introducing courses, following the problem definition through the flowchart to the source program. This gave us a feel for similarities in the higher level languages of Cobol and Fortrar. Lastly we discussed how our source program written in this higher level language is converted to an understandable, lower level, machine language.

Fourth Session:

We reexamined our first days topic "Matchbox Computer", and tried to get a general flow chart depicting the actual stages of playing a game through the computers viewpoint.

MOTIVATIONS TO BE USED

The building of the "computer" and the trial periods during its programming will provide motivation.

MODES OF PRESENTATION

Williams' Strategies 2, 4, 5, and 8 will be used.

MATERIALS TO BE USED

Matchboxes, poster paper, magic markers, tape, paper, "pieces", stencils.

BIBLIOGRAPHY

We Built Our Own Computers, Cambridge U. Press.

The Element of Fortran Style, Kreitzberg & Shneiderman.

Computers and Problem Solving, Hull/Day

Standard Cobol, Murach.

TOPICS FOR INDIVIDUAL RESEARCH

The children were encouraged to investigate flowcharting and its possible uses in their everyday life. Also the various computer languages were only briefly presented and the children were free to investigate these further.

TOURS AND COMMUNITY RESOURCES

The computer facilities of the local university and many of the factories in the area provide opportunities for various tours and can provide many resources.

RESOURCE PEOPLE RECOMMENDED

Members of the math department of the local university and computer programmers from the various factories are good possibilities for resource people.

LEADERSHIP ROLES TO BE PROVIDED

Each person shared leadership roles in building and programming the computer.

LIBRARY SKILLS TO BE EMPHASIZED

Children were not specifically directed to use the library although enough open-ended situations were provided so that library use was desirable.

REWARDS TO BE OFFERED

The success experienced in building and programming the computer was the only specific reward.

MINI-WORKSHOP PROPOSAL

TITLE Animal Behavior AREA S & M NO

PROPOSED BY Michael Crowe DATE Spring 1976

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 12-14

OVERVIEW:

To demonstrate different types of conditioning and to show the differences between instinct and learned behaviors.

OBJECTIVES OF SESSIONS

To teach and demonstrate ways of modifying animal behavior.

OUTLINE CONTENT

First Session:

Introduction to Pavlov--Classical type

conditioning	terms
unconditioned	stimulus
unconditioned	response
conditioned	stimulus
conditioned	response

example

Dog to speak, sit, ect.

Second Session:

Differences between instinct and learned behavior with regard to self-preservation.
Examples: Cat landing on feet as instinct.
Young mouse approach cat with no fear. Learning as result of cat swatting it.

Note: Assign: What is a skinner box?

Third Session:

Introduction to operant conditioning. Discuss skinner box. Rewards by approaching 'target' area; successive degrees.
Example: Get a volunteer to approach target by positive (hand clapping) and negative (booing) reaction.

Fourth Session: (Marshall University)

Demonstration with rats trained to bar press for water in a skinner box.
Show untrained rat with random movement in box, and rat trained to push bar.
Materials: Dog, cat, mouse, or suitable substitutes.

MOTIVATIONS TO BE USED

The desire of the children to learn how to change their own pets' behaviors will be motivating. The opportunity to work with living animals will also provide motivation.

MODES OF PRESENTATION

Williams' Strategies 1, 2, 3, 5, 6, and 7 will be used in the various sessions.

BIBLIOGRAPHY

Introduction to Pshchology by Morgan and King.

TOPICS FOR INDIVIDUAL RESEARCH

The children will be asked to research the development of the skinner box and will be encouraged to look into other aspects of animal behavior not covered in these sessions.

TOURS AND COMMUNITY RESOURCES

Kennels, obedience training classes, zoology department of university, and psychology department of university are good tour locations and resources.

RESOURCE PEOPLE RECOMMENDED

Dog trainer, veterinarian, zoology instructor, and psychology instructor are potential resource people.

LEADERSHIP ROLES TO BE PROVIDED

Each student encouraged to tell about any training they have given to animals, thus giving each one a chance to speak.

LIBRARY SKILLS TO BE EMPHASIZED

No special emphasis, although the children could be easily directed to do research into behavior modification in animals or other related areas.

REWARDS TO BE OFFERED

The only reward will be the opportunity to learn skills that can be used in training domestic animals.

MINI-WORKSHOP PROPOSAL

TITLE Emergency Medicine AREA S & M NO

PROPOSED BY Patrick H. Mills DATE Spring 1975

SESSIONS REQUIRED 5 or 6 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 12-16

OVERVIEW:

To teach children how to save a life.

OBJECTIVES OF SESSIONS

The sessions will teach the students how to properly deal with a sick or injured person until more skilled assistance is available. The students will also learn what capabilities and equipment the local emergency ambulances possess.

OUTLINE OF SESSIONS

First Session:

Either a CSO (Police Dept.) unit or a STOP (Sheriff's Dept.) unit emergency ambulance will be brought to the class and the CSO (Community Service Officer) or the STOP (Sheriff's Tactical Officer's Patrol) officer will demonstrate the various pieces of emergency medical equipment to the students. The students will be allowed to ask any questions that they desire.

Second Session:

The outline of sessions 2-5 is purposely left vague so that an untrained person will be forced to do research before teaching this unit. The instructor must be adequately informed as to the best techniques and procedures and there is no way that a simple outline can do this; the instructor must be either skilled in emergency medicine or must be willing to do enough research so that he can deal with the sessions.

The second session will deal with the following things: ABC's, CPR, and 10 point survey.

ABC's: The students will be taught the importance of Airway, Breathing, and Circulation. They will be taught how to check for these three life essential processes.

CPR: The students will be taught the uses and variations of Cardiopulmonary Resuscitation and how CPR is used if any of the ABC's are missing.

10 point survey: The students will be taught how to conduct a 10 point survey of an injured person. This survey is used to determine the types and extent of injuries that are present.

The students will be given the opportunity to practice the ABC's and CPR on ResusciAnne, a dummy borrowed from the American Heart Assoication. The students will also practice the 10 point survey by being divided into pairs and going over the points of the survey on each other.

Third Session:

The students will spend the first ten minutes of this session in a review of ABC's, CPR, and 10 point survey. The remainder of the session will deal with shock and bleeding.

Shock: The students will be taught the various types of shock and how to recognize and treat a person who is in shock. The prime symptoms are dull eyes, dilated pupils, pale, possibly cyanotic, shallow respiration which is irregular and labored, pulse that is weak and rapid, and skin that is cold and clammy. Proper treatment is to assure breathing, control bleeding, give oxygen if possible, elevate legs, keep warm, keep lying down, and give nothing by mouth.

Bleeding: The students will be taught how to control bleeding through various methods and they will be taught how to bandage wounds. Bleeding can be controlled through the use of direct pressure, pressure points, and elevation of the limb. A tourniquet is to be used to stop bleeding only when it is a matter of life and death.

The students will be given the opportunity to practice treatment for shock, control of bleeding, and bandaging by dividing into pairs and practicing on each other under supervision of theinstructor.

Fourth Session:

The students will spend the first several minutes in reviewing sessions two and three. The remainder of this session will deal with broken bones and splinting.

Broken bones: The students will be taught how to recognize the different types of fractures.

Splinting: The students will be taught how to immobilize and splint broken bones with whatever materials are available.

The students will be given the opportunity to practice treatment for broken bones by dividing into pairs and practicing on each other under supervision of the instructor.

Fifth Session:

The students will spend the first several minutes in reviewing sessions two, three, and four. The remainder of this session will deal with burns and poisoning.

Burns: The students will be taught how to recognize and treat the three degrees of thermal, chemical, and electrical burns. A burn should be covered with a sterile dressing and should be kept moist with sterile water. Chemical burns should be flushed with sterile water. An electrical burn is treated like a thermal burn except, you should look for both an entrance and an exit burn.

Poisoning: The students will be tuaght how to recognize some of the signs and symptoms of poisoning and how to treat these. The students will be taught the purpose and use of the Poison Control Center.

Signs and symptoms: These are so varied that a thorough research of this topic is necessary for the instructor.

Treatment: For ingested poisons the proper treatment is to cause the patient to vomit except when the poison is a strong base, a strong acid, or a petroleum product. The patient should also not vomit if he is unconscious, or having convulsions, a heart patient, or poisoned on a tranquilizer-type drug. The poison should be diluted with water.

Poison Control Center: The students will be taught the location of and how to get in touch with the nearest Poison Control Center.

Sixth Session (optional):

Arrangements can be made for the students to take a guided tour of the emergency room of a local hospital. The students will be given the opportunity to ask any questions that they might have about the operation of the emergency room.

MOTIVATIONS TO BE USED

The motivations will be the students' desires to learn how to save someone's life and to gain some knowledge of the field of emergency medicine.

MODES OF PRESENTATION

The presentations will be lecture-demonstration with practical application of the skills learned. Tours for the purposes of observation will also be conducted. Williams' Strategies 5 and 14 will also be used.

MATERIALS TO BE USED

Emergency Care by Harvey Grant and Robert Murray.

Emergency Care and Transportation of the Sick and Injured by the American College of Orthopedic Surgeons.

Various pamphlets from the American Heart Association.

ResusciAnne from the American Heart Association.

Various bandages, dressings, and splints as determined by the instructor.

TOPICS FOR INDIVIDUAL RESEARCH

Various aspects for emergency care of patients and toher related medical fields can be emphasized for research. Historical aspects of emergency medicine can be investigated. Future aspects of emergency medicine can be covered.

TOURS AND COMMUNITY RESOURCES

Tours could be in the form of trips to the various emergency rooms, visits to the emergency ambulance dispatch center, investigations of the emergency ambulances, and with special arrangement, trips on an in-service ambulance. Community resources are present in the organizations that operate the emergency ambulances, the emergency departments of hospitals, The State Health Department, the Boy Scouts of America, Red Cross, the county health departments, and the American Heart Association and other similar organizations that are involved in emergency medicine.

RESOURCE PEOPLE RECOMMENDED

The best person to teach the course would be someone skilled in emergency medicine. This could be a member of an emergency room staff, an EMT, a paramedic, a Red Cross Instructor, or other persons with similar qualifications.

LEADERSHIP ROLES

In all of the practical applications parts of this unit, the students will work in pairs and will have opportunities to be leaders.

LIBRARY SKILLS

No special emphasis will be placed on this, although the students will need to know how to use the library if they choose to do any independent research.

REWARDS:

In the session dealing with CPR, each student may earn a CPR card from the American Heart Association when the instructor is satisfied that the student has mastered CPR techniques. No further rewards are planned, although the skills in life-saving procedures and in dealing with emergency situations should provide each child with a sense of confidence in his ability to successfully deal with emergency situations.

MINI-WORKSHOP PROPOSAL

TITLE Bicycle Fair AREA S & M NO

PROPOSED BY Kip Hartenbach DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE none AGE RANGE 9-11

OVERVIEW:

This project is designed to help the children develop in their psychomotor skills. It will also expose them to the concepts of bicycle safety and proper maintenance of a bicycle. The experience in using tools and doing their own mechanical work may produce an interest in further investigations in this area. Each child should be given the opportunity to learn how to safely ride and maintain a bicycle.

SESSION ONE

1. Ask the children how they feel that the bicycle fair can be turned into a science project. Give them time to interact freely and come to their own conclusions. The children should come to conclusions that will concur with the activities of this project. If their conclusions are radically different, then these sessions may have to be revised.

2. Ask the children to brainstorm the topic, "How can a bicycle be improved," for a few minutes. When the list of suggestions has been developed, have the children evaluate the ideas and select the ones that they feel are best. If the children wish, the instructor will write a letter to differenct bicycle manufacturers and provide them with a list of the children's suggestions. The responses of the manufactures will provide a type of delayed reinforcement to the children.

3. Using a bicycle for demonstration pr[illegible]es, the instructor will briefly describe the mechanics of the various p[illegible]s of the bicycle. This will include the parts used in steering, braking, and [illegible]opelling the bicycle.

4. Role-play bicycle safety by having children assume various roles and place them in different situations. The exact roles and situations can be determined by the students. Give them time to evaluate their different situations after the role-playing is completed.

5. Give each child a copy of the "Fun on Wheels" bicycle program (copy attached) and ask them to read through it before the next session.

SESSION TWO

1. Have the Huntington Police Department bring the talking bicycle to this session. This is an multi-media presentation involving a city policeman, a casette tape recorder, and a specially designed bicycle provided by Schwinn. As the tape is played, the policeman is provided with spaces to read portions of a prepared script and a speaker on the bicycle provides the answers. As the bicycle is "talking", the parts being discussed glow and move.

2. After the multi-media presentation, the city policeman will briefly tell the children about the various city and state regulations involving bicycles and he will then be in charge of a discussion session with the children. This discussion will be led by the children and will cover whatever topics the children choose.

3. The instructor will provide two old bicycles and will show the children how to change a tire and how to replace spokes. The children will be given a chance to practice these activities.

4. The children will be asked to bring their bicycles to the next session and will be told that this session will be involved with making repairs and adjustments to their bicycles. The children will be told that they may bring their own tools.

SESSION THREE

1. Each child will have his own bicycle. If a child did not bring his bicycle, he will work on one of the town old bicycles provided by the instructor.

2. Each child will work individually on his own bicycle and the insturctor will help each child with the repairs or adjustments that the child is making. The children will be free to observe or help one another as the opportunity arises.

3. Each child should be shown how to adjust his handlebars, how to adjust his seat, how to adjust the tension on the sprocket chain, how to adjust the brakes, and how to grease and oil the various parts.

4. Each child will be asked to bring his bicycle back to the fourth session for a bicycle rodeo.

SESSION FOUR

1. Each child will ride his own bicycle and will participate in the events of his choice from those outlined below. If a child does not bring his own bicycle, he will be involved in these activities by acting as a judge for the various events. Each child will be given a copy of the rules of the events.

2. For each event the first place finisher will get three points, the second place finisher will get two points and the third place finisher will get one point.

3. At the conclusion of all events, the points will be compiled and prized will be awarded. Each person who finished first in an event will be awarded an elastic hold-down strap, the person who finished with the most cumulative points will be awarded a small tool kit, the person who finishes second in cumulative points will be awarded a bicycle tire pump, the person who finishes third in cumulative points will be awarded an orange safety pennant, and all other participants will be awarded a set of reflectors.

4. The children will be encouraged to analyze the results of each event and will be given the opportunity to discuss why the individual combinations of bicycle and rider might have performed as they did in each event.

5. The different events are as follows:

"Straight Go"

Two parallel white lines 6 inches apart and 25 feet in length are used. Each rider starts with the front tire of his bicycle bwtween the lines. The object is to go as far as possible without crossing one of the two lines.

"Far-Go"

Each rider will be given a 25 foot approach to a white line. When the rider crosses the white line he is not allowed to pedal any more. The object is to coast as far as possible after crossing the white line.

"Fast-Go"

A straight 50 yard course will be prepared and a white start and finish line will be marked. From a stationary position at the starting line each rider will be timed to see how quickly he can cover the course. The object is to cover the 50 yard course as rapidly as possible.

"Slalom"

Ten bowling pins will be set 10 feet apart in a straight line. From a stationary position 20 feet away from the first pin, each rider will weave his way back and forth between the pins without crossing the white boundary lines which will be 10 feet on either side of the bowling pins. The object is to pass between the bowling pins without knocking any of them over and without missing any.

"Controlled Stop"

From 25 feet away each rider will approach a white line. The rider is to stop with his front tire as close to the line as possible. The object is to stop in a controlled and deliberate manner.

"Bombs-Away"

Four coffee cans will be arranges in a straight line 10 feet apart from each other. Each rider will be given 4 ping-pong balls and will be given a 25 foot approach to the cans. The object is to drop one of the ping-pong balls into each can in such a way that it does not bounce out.

BICYCLE FAIR

Materials Needed: Fifteen copies of "Fun on Wheels", 2 old bicycle tires, inner tubes, and spokes, 2 sets of bicycle tools, grease, oil, 5 pounds of flour or lime, 6 elastic hold-down straps, small tool kit, bicycle tire pump, orange safety pennant, 6 sets of reflectors, 10 bowling pins, 15 copies of rules of events, 50 foot tape measure, 12 ping-pong balls, 4 coffee cans.

Bibliography of Resources: Huntington Police Department
Fun on Wheels from W. Va. 4-H Program

Ways in Which Creativity is Encouraged: The activities of brainstorming and role-playing in this session encourage creative thought processes.

Topics for Individual Research: Not particularly emphasized in this session although there are possibilities.

Library Skills: Not emphasized by this session.

Motivation and Rewards: The children's own interest is the motivation factor. Rewards have already been described.

Leadership Skills: Role-playing will be used to place different children in leadership roles.

MINI-WORKSHOP PROPOSAL

TITLE Stream Ecology AREA S & M NO

PROPOSED BY Edwin K. Berry DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE None AGE RANGE 10-16

OVERVIEW:

An investigation of the interrelationships of life in a fresh water stream.

STREAM ECOLOGY

First Session:

Objectives -

1. To be able to state that most aquatic animals obtain oxygen by gills.

2. To be able to locate gills in some aquatic organisms.

3. To learn how to distinguish organisms apart on the basis of structure.

4. To speculate on the type of habitat an organism would occupy based on its structure.

5. Give an organism a name based on observations of that organism.

Outline -

A. Background

Definition of Ecology: The study of the interrelationships of living things with each other and with their environment.
? What does the term interrelationship mean?
? What is included in the environment?

B. Introduction

Too often ecology is thought of as a study of pollution. We cannot understand how pollution affects the living things in an environment unless we first know what living things are in that environment and the relationships existing between those organisms and the environment.

Today we are going to study living things from a stream and a pond. Plants and animals that live in water are called aquatic organisms.

C. Fish

1. Have 3 different types of live fish (minnow, bluegill, and darter) in an aquarium. It is important to know what organism you are dealing with so we will learn ways to tell organims apart.

2. Have each student list ways in which the fish differ. e.g. fins, shape, color, habits, etc.

3. ? How are the fish alike? e.g. scales, fins, etc.

4. ? How do the fish get the oxygen they need?
At this point show the students the gills on one of the fish.

5. Have each student sketch the fish he or she likes best and give it a name based on its structure, habits, etc.

6. By looking at the shape of the fish have the students speculate on the habitat the fish came from.

D. Aquatic Insects

1. Have several types of aquatic insects for the students to examine using a stereomicroscope.

2. Have the students list ways in which the insects differ.

3. Have the studentslist ways in which the insects are similar.

4. ? How do the insects obtain the oxygen they need? At this point show the gills on different insects.

5. Have each student sketch the insect he or she likes best and give it a name based on its appearance, habits, etc.

6. Have the students speculate on the habitat from which the insects came. Give hints if needed.

Materials Used -

Live fish
Live aquatic insects
Aquarium and aquarium net
5 stereomicroscopes
paper and pencils

Bibliography -

A Guide to the Study of Freshwater Ecology. Stoker, Agsteribbe, Windsor, and Andrews. Prentice-Hall Inc., Englewood Cliffs, N. J. 1972

Second Session:

Objectives -

1. To learn how to use a microscope properly.

2. Learn the concepts of
   a. producer
   b. consumer
   c. decomposer
   d. energy flow
   e. nutrient cycling
   f. succession

3. Correlate terms a-b-c with the term niche.

Outline of Session -

A. Define Ecology

B. Define Niche - role that an organism occupies in its community.

C. Examine the niches of a community.

1. Producers - use simple inorganic matter to synthsize foods.
2. Consumers - cannot make their own foods-must depend on producers.

3. Decomposers - consumers that feed on dead organic matter and in so doing return materials to the ecosystem.

D. Energy flows thru system.
Matter is recycled.

E. Can we seal a ecosystem off and it still survive?
Will the population remain the same?
If the population changes this is known as succession.

F. Show students how to use microscope.

G. Examine water and identify

producers — sketch ones
consumers — we find.

H. Fill one test tube with water for each student. Seal the tube with wax.

We will put the tubes by a window where they will get light energy and leaves then until the next meeting. Next meeting we will open then and see if any changes occur.

Third Session:

Objectives -

1. Learn that oxygen is necessary for both plants and animals.

2. Know that oxygen in the atmosphere is plentiful but that the amount in water is small.

3. Learn that oxygen is produced by green plants during photosynthesis.

4. Follow up Session 2 recalling
   a. use of microscope
   b. Terms - producer, consumer, and particularly succession

Outline -

I. What element is required by both plants and animals?
answer: oxygen other correct answer: food (molecules)

II. Where does this oxygen come from?
answer: air - the atmosphere

III. How did it get there?

Always was there?

Why is the amount of oxygen in the atmosphere staying the same (why is it not decreasing?)

answer: Photosynthesis

Green plants produce oxygen in excess of their own needs.

IV. How much of the atmosphere is oxygen?

answer: 20%

V. How do Aquatic organisms get the oxygen they need?

answer: from water by means of gills (most)

VI. What percentage of the water is oxygen?

answer: Very small measured in parts per million

Draw a water sample and demonstrate the oxygen test.

Let the students perform their own test.

VII. Get the sealed test tubes out from the last session (two weeks ago) and examine them microscopically for succession. Note any changes in number or species. If changes have occured have the students theorize on the reasons.

Fourth Session:

Objectives -

1. To have the students think of positive and negative effects of

   a. strip mines
   b. dams
   c. other activities of man that affect streams.

2. To realize that there are two sides to every issue.

Outline -

I. Show newspaper clippings on proposed strip mine in Cabell County and New River Dam.

II. Divide students into 2 groups 1 pro-mine 1 anti-mine and have them list their reasons for being on that side. Give students a few (5) minutes to prepare their remarks.

III. Debate pros and cons of strip mining.

Instructor will serve as moderator to keep things going.

IV. Repeat the above procedure with the New River Dam as the topic.

Moderator can ask questions to each side to help debate along.

V. Conclusion

Environmental problems are complex.

In few cases are there right or wrong answers we must make judgements based on what we feel are the true values.

When dealing with environmental problems.

Here are some key works dealing with the topic.

silt	lumber	reclaimation	jobs
acid	water table	cost	ownership
runoff	high walls	ease	recreation
erosion	level land	safety	

Bibliography of Resources: Marshall University Biological Sciences Dept.
National Wildlife Federation
W. Va. Dept. of Natural Resources

Ways in Which Creativity is Encouraged: By allowing students to theorize about the habitats or possible names for organisms and by allowing them to debate different aspects of creativity will be aided.

Topics for Individual Research: Many areas of conservation, ecology, etc., will be available for research of the child's own choosing.

Library Skills: If time permits, the debate topic can be presented earlier in the sessions and the children will have an opportunity to gather information for their debate.

Motivation and Rewards: Children will be self-motivated due to their interest in this topic. Motivation will also be accomplished through the idea of having a debate. No special rewards will be offered.

Leadership Skills: Being a debate team leader would help develop leadership abilities.

Modes of Presentation: Williams' Strategies 2, 3, 4, 5, 8, and 14 will be used.

Tours and Community Resources: The biology department of the local university could be an excellent resource. Tours could take place along any fresh water stream.

Resource People Recommended: Local conservation officers, 4-H leaders, Boy Scout leaders, biology teachers.

MINI-WORKSHOP PROPOSAL

TITLE Ceramics AREA Arts NO

PROPOSED BY Yvonne Hughes DATE Spring 1975

SESSIONS REQUIRED 3 SESSIONS LENGTH 2 hours

MOTIVATIONAL TITLE Do Your Own Thing AGE RANGE 9-17

OVERVIEW:

This unit provides students with the opportunity to learn from scratch several basic ceramic techniques. This unit would be applicable to students with no background or experience in ceramic work.

MOTIVATIONAL DESCRIPTION FOR STUDENTS:

Students demonstrated interest in ceramics by requesting this course.

Discuss individually with each student his/her background in ceramics.

A wide variety of finished ceramic pieces with a variety of textures are shown to the students.

Examples: pinch pot
wheel-thrown pot
coil pot
slab sculpture
tiles
air-trap forms
newspaper-stuffed forms
carved forms--either additive or subtractive

Glaze decoration:
clear glaze
intalgio
sgraffito
poured and drip glaze
matt and gloss glazes
incised decoration

Discuss the properties of clay, behavior, glaze composition.

Demonstrate each technique briefly: roll and cut tile
make pinch pot
roll coil and bottom
demonstrate scoring and use of tools

OBJECTIVES:

To provide students with the opportunity to learn basic information about the field of ceramics; clay, glazes, methods of construction.

To provide students with the opportunity to examine a variety of examples of ceramic work.

To provide students with the opportunity to learn techniques for creating ceramic pieces.

To provide students with the opportunity to create actual clay products by hand.

To provide students with the opportunity to observe pots being thrown on the potter's wheel.

To provide students with the opportunity to learn the technique of throwing pots on the wheel.

To provide students with the opportunity to create pots on the wheel.

To provide students with the opportunity to decorate and glaze their clay pieces.

COURSE OUTLINE:

First Session:

Cover tables with heavy newspaper.
Discuss individually with each student ceramic background and interests.
Display examples of ceramic techniques.
Display a variety of library materials of ceramic projects.
Discuss the examples and describe each process.
Demonstrate with clay briefly each process plus the scoring technique.
Each student takes a lump of clay and wedges it.

Assignment:

A 2-dimensional project: Tile, plaque, or group of tiles.
Each student rolls the clay, cuts a tile, and decorates it.
Each tile is placed on a hard surface and covered with plastic.

Assignment:

A 3-dimensional hand-built form: pinch pot
coil pot
slab form
newspaper-stuffed form

Assignment:

3-dimensional figure
Subtraction from a solid lump or addition of several pieces together

All pieces are stored to dry with plastic laid over them.

Second Session:

Visit the Huntington Galleries

Demonstrate throwing on the wheel

-centering the clay
-opening the form
-raising the form
-finishing the form
-cleaning the form
-cutting and lifting form from wheel
-cutting the foot

Students practice throwing forms on the wheel.

Finished projects are wrapped in plastic and returned to PACE Center for storage.

Third Session:

After clay projects have been bisque fired--glazing is done on all pieces.

From the available glazes students may dip, brush, or pour glazes onto forms.

Sgraffito may be done--cutting through the glaze after it is done to form a design.

If glaze is brushed on, 3 coats are used.

Colors may be mixed or put one over the other.

Pieces are then fired again.

MATERIALS NEEDED:

newspaper
stoneware clay--red or grey
plastic--dry-cleaning bags, Saran Wrap, etc.
water and water cups
sponges
clay tools
rolling pins--or jars, etc. to roll out clay
knives, forks, combs, pencils, for cutting and texturing clay
variety of ceramic glazes
brushes

BIBLIOGRAPHY OF BOOKS AND OTHER SOURCES WHICH WERE OR COULD BE CONSULTED (INCLUDING PEOPLE)

Man and His Images--Georgine Oeri, Viking Press, 1968.

Nature as Designer--Bertel Bager, Reinhold, 1966.

Hand-Built Pottery--Josephine Krum, Internationa, 1960.

Art: Of Wonder and a World--Jean Mary Morman, Art Ed., Inc, 1969.

Encounter With Art--Reid Hastie and Christiam Schmidt, McGraw-Hill.

Pottery: Form and Expression--Reinhold, 1962.

Complete Book of Pottery-Making--Chilton, John Kenny, 1959.

Ceramics and How to Decorate Them, Sterling, Joan Priolo.

WAYS IN WHICH STUDENT CREATIVITY IS ENCOURAGED IN SESSIONS:

Each student is constantly encouraged to create his own new forms in each assignment, using his own technique; glazing each piece is encouraged to create his own unique effect.

IF CONTINUATION OF THE COURSE IS FEASIBLE IT COULD TAKE THE FOLLOWING FORMS:

More extensive work experiences in each technique.
Larger pieces might be created.

Extensive work on the potter's wheel.
In-depth work in one specific technique: For example, a large plaque made of many tile pieces; perhaps irregularly shaped, or a set of mugs, plates, etc. thrown on the wheel.

WAYS IN WHICH THE COURSE COULD LEAD TO STUDENT USE OF THE LIBRARY:

Students use library sources initially to look at examples of clay work and also possible techniques.

Students find the library a source for additional projects.

REWARDS OFFERED STUDENT FOR WORK DONE IN AND BETWEEN SESSIONS:

The finished product can be displayed and taken home for others to see.

MINI-WORKSHOP PROPOSAL

TITLE Gymnastics AREA Arts NO

PROPOSED BY Billie Jo Brinzendine DATE Summer 1974

SESSIONS REQUIRED 5 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Physical Activities for Fun AGE RANGE 10-12

OVERVIEW:

This unit provides suggested ways in which the teacher could direct students in a variety of physical activities in an organized situation. This unit was used in the summer activities and does not follow the standard unit plan.

ORGANIZATION FOR UNIT

Monday:

15 min. talk
5 " exercise
10 " demonstration
10 " work station 1
10 " " " 2
10 " " " 3
10 " " " 4

TALK:

Explain organization - 4 stations
1. Mats - tumbling
2. Mats - double - stunts
3. Parallel bars
4. Balance Beam

Will have 5 to 10 minutes warm-up exercises

SAFETY:

1. Never work alone if it's a new stunt or any chance of getting hurt.
2. Do the stunts correctly.
3. Learn basic stunts before trying more advanced stunts.

Divide class into 4 groups the first day.

Each group will work 10 minutes at a station then move on to the next station.

Books are available to use to look-up directions or new stunts.

CHARTS:

For students to check off stunts when they have learned the stunt well, also for instructor to know what they need help with.

SCHEDULE

Monday - Explain organization and safety.
Demonstrate on equipment - mats, bars and beam.
Do exercises - class
Work individually for 10 minutes at each station.

Tuesday - Do warm-up exercises
Individual work

Wednesday - Warm-up exercises
Individual work

Thursday - Warm-up exercises
Demonstrate and instruct on the vaulting horse
Individual work

Friday - Warm-up exercises
Individual work

EXERCISES AND STUNTS TO WORK ON

Exercises

Strech in straddle position
Pretzel Bend
Push-ups
Backbends (bridge)
Splits (do on both sides)
Leg lifts
Running (in place or laps)
Sit-ups with twist

Tumbling

Tri-pod
Tip-up
Headstand
Forward roll
Backward roll
Handstand
Limbre
Front walkover
Back walkover
Cartwheel
Round-off
Split

Double Stunts

Wring Dish cloth
Wheelbarrow
Chinese get-up
Stand on partner's back
Angel balance
Mercury
Back Flip over partner

Parallel Bars

Walk the rail
Hang and swing
Bird's nest
Skin the cat
Inverted hang
Struggle-up

Balance Beam

Front support to straddle seat
Knee scale mount
Squat mount
Wolk mount
Step on mount
Foward walk
Run, hop, skip, leap
Arabesque
Squat turn
Pivot turn
Forward roll
Hand stand
Cart wheel
Walkover
Dismounts
Straddle toe touch
Round-off
Cart wheel

BIBLIOGRAPHY

Gymnastics Guide, June 1971-June 1973.
The Division for Girls and Women's Sports.
Americian Association for Health, Physical Education, and Recreation: Washington, D. C. 20036

Horne, Virginia Lee. Stunts and Tumbling for Girls. The Ronald Press Co., N. Y.

Physical Education Curriculum Guide for Elementary School Teachers, Grades 1-6.
West Virginia State Department of Education, Charleston, W. Va.

Cooper, Phyllis. Feminine Gymnastics, Burgess, Publishing Co., Minneapolis, Minn. 55415.

Physical Education Games for Cabell County Schools, Grades K-6, West Virginia Department of Education, Charleston, W. Va.

Materials to be Used:

Record player - 2 Mantovani Musical Records
Tumbling mats
Parallel Bars - Even
Balance beams - 1 small - 1 large
Vaulting horse
Check-off charts for each piece of equipment

MINI-WORKSHOP PROPOSAL

TITLE Song Writing AREA Arts NO

PROPOSED BY Nancy Whear DATE

SESSIONS REQUIRED 4 SESSIONS LENGTH 1 hour

MOTIVATIONAL TITLE Create Your Own Music AGE RANGE 9-16

OVERVIEW:

This unit is designed to introduce the student to simple song composition by using poetry for the lyrics.

MOTIVATION DESCRIPTION FOR STUDENTS

In this course we will discover the ingredients of tunes for songs. We will write tunes together and individually and set to music poems we have written or have chosen from books. We will get the songs written down, put simple accompaniments to them and perform them for each other.

OBJECTIVES

The objectives will be to explore the structure of simple folk-like tunes--the phrase patterns and the simplest harmonic implications. Students will be encouraged to use poems of their own invention, or will find poems they like to set to music. They will be given whatever assistance they need (depending on their previous backgrounds) to write their tunes down and harmonize them.

Although we will approach song writing from the simplest strophic forms, every encouragement will be given to branch out freely into other types, with discussion coming afterward to discover what forms their free invention has taken.

COURSE OUTLINE

First Session:

Some time must be devoted to finding out what the musical backgrounds of the pupils are, specifically what their skills are at reading music, putting down tunes they know and seeing if any have already tried their hands at composing tunes. We will start with a discussion of simple "question and answer" type of melody. The instructor will start then by giving a "question" part of the tune to which the pupils can supply "answers." The harmonic feeling--the "homing" to the tonic tendency will be discussed and the feel of finding the tonic at various points in the tune will be introduced.

If time permits we will make up a whole tune collectively, each supplying a phrase, the group deciding which phrases work best together.

At the end of the session, pupils will be asked to bring poems (preferably of their own invention) to the next session, and to think about tunes for them before we meet again.

Second Session:

If we wid not succeed in finishing our collective tune in the first session, we will start with that. Or we will review what we did get accomplished and see how it sounds a week later. Then we will separate to experiment on the available instruments. Those who have not brought poems will be given poetry books to find some. In this way the use of the instruments can be alternated. The teacher will circulate to give help to each pupil--especially in the finding of the correct starting notes and the writing down of the tunes. Time will be allowed for playing to each other any accomplished work.

Third Session:

Some free time will again be allowed to wirk at the instruments freely, with the teacher circulating to help. Discussion will center around the two main theories of setting words to music: setting the individual word to portray the meaning, or trying to catch the mood of the whole. There will be more discussion of tonic (and dominant) feeling and the autoharp can be used to start harmonizing the work that is finished. The tunes already written will be used to illustrate.

Fourth Session:

The fourth session will probably "carry itself" in the finishing up of projects started. There should be a recital of works. If there is extra time, we will try setting the same words separately and seeing how differently the finished songs are.

MATERIALS NEEDED

Poetry books
Manuscript paper
Instruments: Music board, keyboard, autoharp, etc., pencils.

BIBLIOGRAPHY OF BOOKS AND OTHER SOURCES WHICH WERE OR COULD BE CONSULTED (INCLUDING PEOPLE)

Pace, Robert, Skills and Drills. Lee Roberts, 1961.

(Person Dr. Paul W. Whear, Marshall University, Huntington, W. Va.

WAYS IN WHICH STUDENT CREATIVITY IS ENCOURAGED IN SESSIONS

Creativity is the whole procedure and effect. Not only will students produce music but, it is to be hoped, poetry as well. Only the most basic guides will be given and no attempt on their parts to be imaginative will be curtailed by rules.

IF A CONTINUATION OF THIS COURSE IS FEASABLE IT COULD TAKE THE FOLLOWING FORM

There has been no "end" as such. The next phase would be continued in much the same manner, with exploration of other types of melodies (based on sequences, variations, etc.). Longer works would be undertaken. More involved harmony would be explored.

WAYS IN WHICH THE SESSIONS OFFERED THE CHILDREN LEADERSHIP OPPORTUNITIES

Discussion will encourage students to assert their opinions. Performance will encourage ease in public appearance. It is not particularly a leadership oriented field, however.

WAYS IN WHICH THE COURSE COULD LEAD TO STUDENT USE OF THE LIBRARY

This course will not provoke a lot of study--by its nature. We will use poetry books, and those who want to go on by themselves can be shown in the music books where to learn more about harmony.

REWARDS OFFERED STUDENT FOR WORK DONE IN AND BETWEEN SESSIONS

Performance of work before the group should be ideal incentive to profuce work between sessions.

MINI-WORKSHOP PROPOSAL

TITLE Beginning Instruments AREA Music NO

PROPOSED BY Mary Fike Jackson DATE Spring 1975

SESSIONS REQUIRED 4 SESSIONS LENGTH 2 hours

MOTIVATIONAL TITLE Play It Yourself AGE RANGE 10-16

OVERVIEW:

This unit provides an introduction to playing the piano, recorder, harmonica and guitar.

MINI COURSE PLANS

MOTIVATION DESCRIPTION FOR STUDENTS

Play it yourself. Learn your choice of piano, recorder, harmonica or guitar.

OBJECTIVES

To introduce the students to piano, recorder, harmonica or guitar.

To give beginning instrumentalists ensemble experience.

To teach instruments in a free non-structured atmosphere which allows each student to progress at his own rate.

To begin to learn the technique of the chosen instrument (s).

To enjoy making music together.

To employ music reading as needed for playing the instrumental pieces.

To engage in simple improvisation.

COURSE OUTLINE

First Session:

Each two hour session was divided approximately in half. The first half was devoted to semi-indiviudal instruction on whatever instrument the child chose for that hour. The only restriction was that he stay in one area long enough to accomplish some skill (as determined by the teacher). The instructors developed the guitar, piano, recorder and harmonica classes in "tasks". See Appencix I-IV. Each child was to complete a specific task before moving to a new class. Most children tended to stay in one class for most of the period. Moving was not a problem.

Second and Third Sessions:

The second hour was spent in group playing. Thepieces included in Appendix V-VII were the pieces used in the ensemble.

Fourth Session:

The students were recorded at the end of the last class.

MATERIALS NEEDED

Instruments--recorders, guitars, harmonicas, one or more keyboard instruments. Bells can be used as a substitute for practice.

Instructional books--harmonica book used in this class is included as Appendix XIII.

Piano used pieces collected from various sources.

Recorder used Mel Bay's Fun with the Recorder.

Guitar used original materials and songs in Appendix XIV and XV.

BIBLIOGRAPHY OF BOOKS AND TOHER SOURCES WHICH WERE OR COULD BE CONSULTED (INCLUDING PEOPLE)

Mary Fike Jackson
41 Rock Spring Road
Stamford, Conn.

Dan Breece
1st Presbyterian Church
Huntington, W. Va.

WAYS IN WHICH STUDENT CREATIVITY IS ENCOURAGED IN SESSIONS

Students worked on original compositions in piano, recorder, and harmonica.

Improvisation was encouraged in the larger group and in the small group sessions (see Appendix on recorder for further examples).

IF A CONTINUATION OF THIS COURSE IS FEASIBLE IT COULD TAKE THE FOLLOWING FORM:

The class could progress in exactly the same manner except soon the students would need a public performance to encourage home practice and better quality performance in the group.

WAYS IN WHICH THE COURSE COULD LEAD TO STUDENT USE OF THE LIBRARY

Probably would not

REWARDS OFFERED STUDENT FOR WORK DONE IN AND BETWEEN SESSIONS

The students were recorded in the last class session.

APPENDIX I

TO LEARN RECORDER

1.	Learn how to hold the recorder and how to make G, A, B, and E (p. 5)
2.	Make up 3 patterns with these notes: Use them as ostinatos.
3.	Learn lesson 1 in recorder book
4.	Learn lesson 2 in recorder book
5.	Learn lesson 3 in recorder book
6.	Improvise or compose and play a melody using G, A. B, E
7.	Learn C and lesson 4 in recorder book
8.	Improvise or compose a melody using G, A, B, C, and E.
9.	Improvise a question and answer melody using G, A, B, C and E with antoher recorder
10.	Learn how to play D
11.	Improvise with each of the following ostinatos:
12.	Learn lessons 5 and 6
13.	Learn to play F, D, and low C and improvise several melodies with them
14.	Plan an original melody in AABA form
15.	Learn lessons 7 and 8
16.	Learn two new songs farther over in the book
17/18.	Learn 4 more songs in the recorder book

LEARNING RECORDER

STUDENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Students shall keep their own record on above chart of mastery of each skill.

APPENDIX II

TO LEARN GUITAR

1.	Know the names of the different parts of the guitar.
2.	Be able to tune a guitar by yourself given the pitch of the sixth string (E) only from the piano.
3.	Memorize the names of the six strings and be able to figure out the other notes on those strings up to the fifth fret.
4.	Be able to move smoothly from one chord to another while playing songs.
5.	Demonstrate knowledge of different kinds of strumming and finger picking.
6.	Play technique exercise No. 1 at a satisfactory speed on all strings.

LEARNING GUITAR

STUDENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

APPENDIX III

TO LEARN PIANO

1.	Recognize and understand G and F clefs.
2.	Name and play the notes from g, an octave below middle c, to g, an octave above.
3.	Learn the construction of a major scale.
4.	Locate whole and half steps on your piano.
5.	Play the C major scale
6.	Read through He's Got the Whole World in His Hands, giving the letter names of the notes.
7.	Play Whole World - melody with right hand.
8.	Locate I and V chords of C scale with left hand.
9.	Play Whole World, adding chords with the left hand.
10.	Make up some melodies in C major.
11.	Take flash cards home to study letter names of notes.
12.	Find and play at home some songs in key of C.
13.	Read through Annie's Song, giving letter names of notes.
14.	Play Annie's Song - melody with right hand.
15.	Construct the G Major scale. Play it.
16.	Read through Four Strong Winds - naming notes.
17.	Play Four Strong Winds - right hand melody
18.	Learn the I and V chord in G major and then a minor chord.
19.	Play Four Strong Winds, adding chords with left hand.
20.	Compose a melody in key of G.

LEARNING PIANO

STUDENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

APPENDIX IV

TO LEARN HARMONICA

1.	Learn how to hold the harmonica and play a C scale (handbook p. 1)
2.	Play the scale in single notes and chords - Full Range. Know what notes you are playing.
3.	Learn "Row Your Boat". Play it in a round with another harmonica.
4.	Play "Long Long Ago" by ear. (or another song you choose)
5.	Learn "Joy to the World". (handbook p. 4)
6.	Play the verse of "Joy to the World" by ear. (or another song you choose)
7.	Learn from p. 10 how to play vibrato on harmonica.
8.	Improvise a sad song using vibrato.
9.	Learn "Skip to My Lou" (p.5)
10.	Improvise question and answer phrases with another harmonica.
11.	Learn "When the Saints Go Marching In".
12.	Choose a song from the suggested list (p. 7) and figure it out by ear.
13.	Improvise a happy song.
14.	Listen to a recording of harmonica ("Instrumental Music of Southern Appalachians" - orange - in racks).
15.	Learn another song by ear and write it out on music paper (p. 8-9)
16.	Learn two more songs by ear.

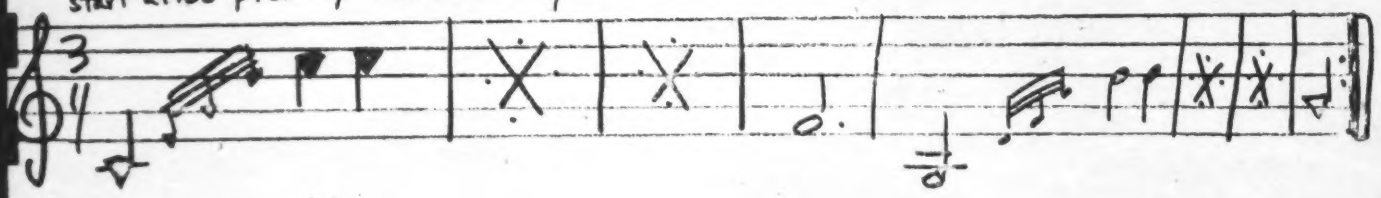
LEARNING HARMONICA

STUDENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

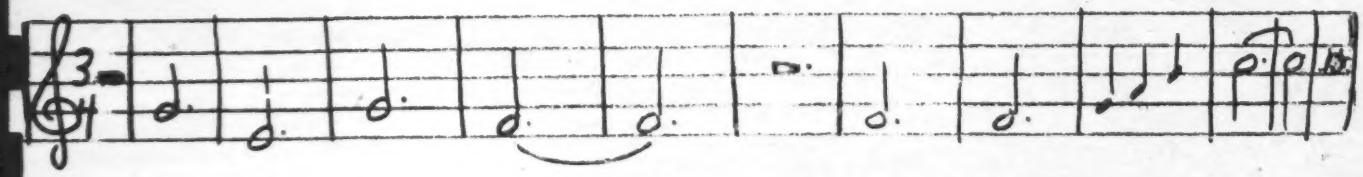
Down in The Valley

harmonica

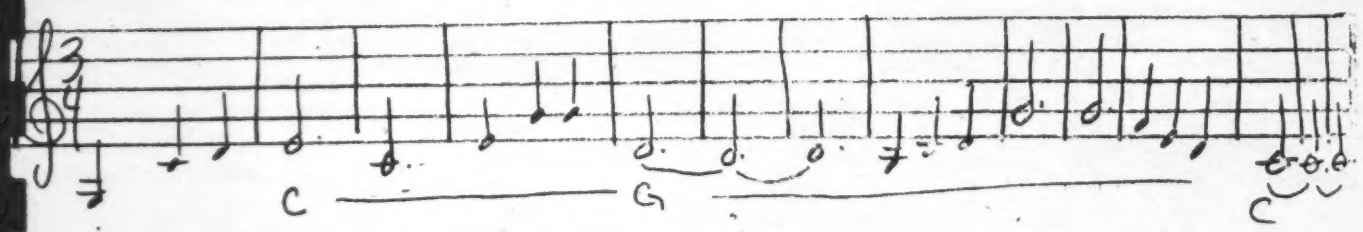
start after pick up notes in melody



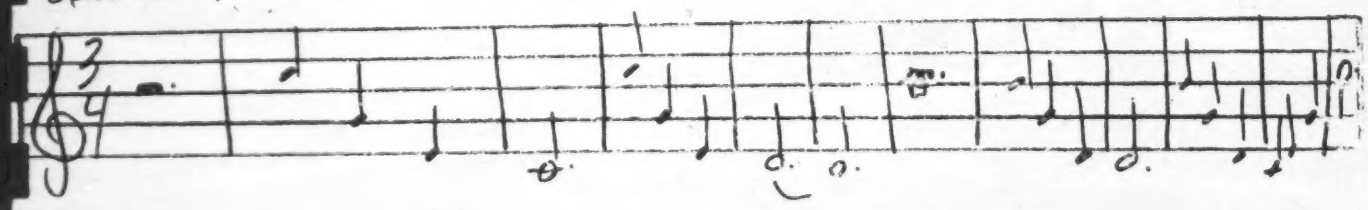
Recorder



Piano + Guitar

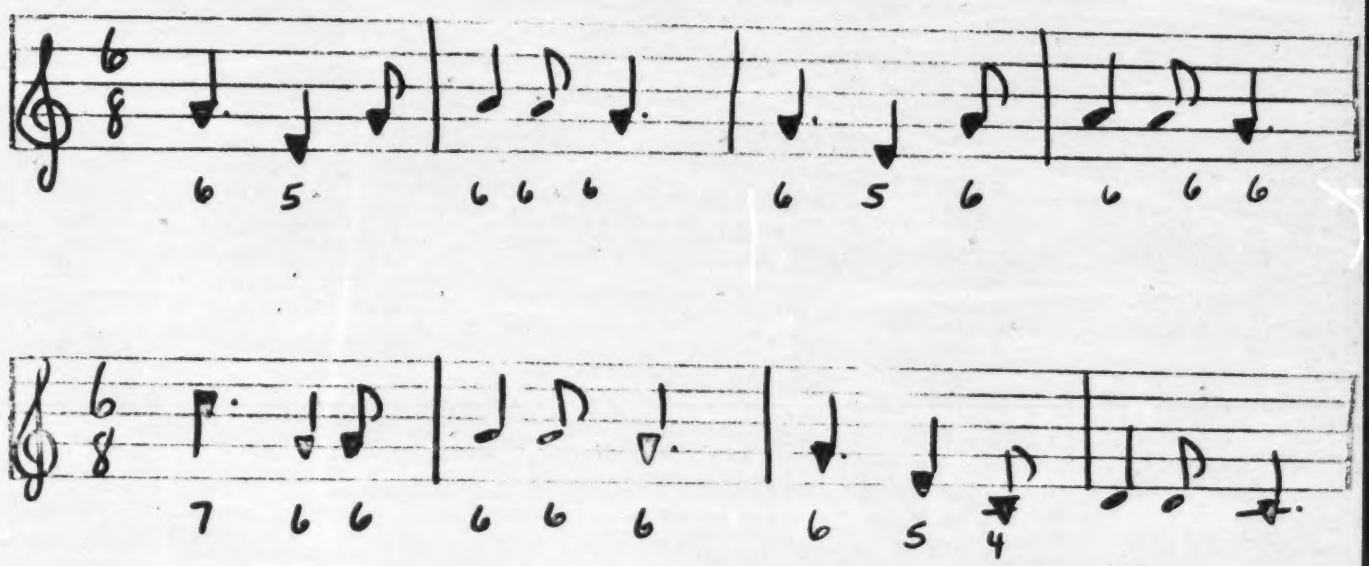


Optional piano



Row Your Boat

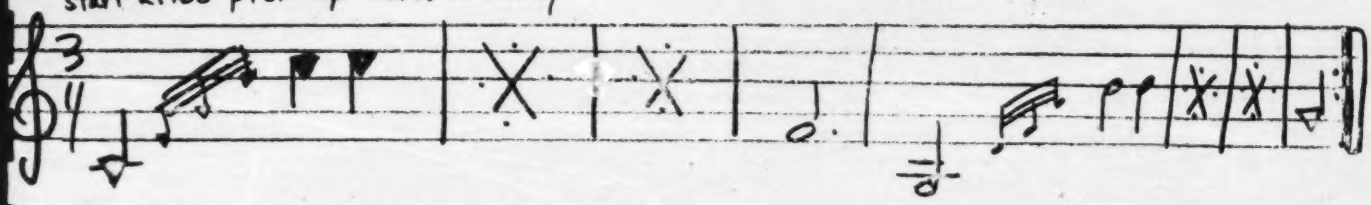
Quiet Song



Down in The Valley

harmonica

start after pick up notes in melody



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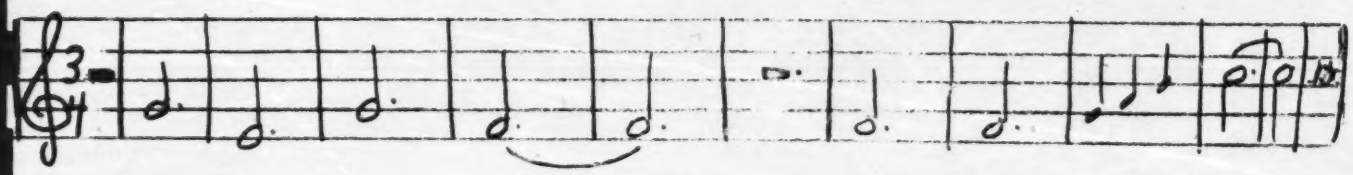
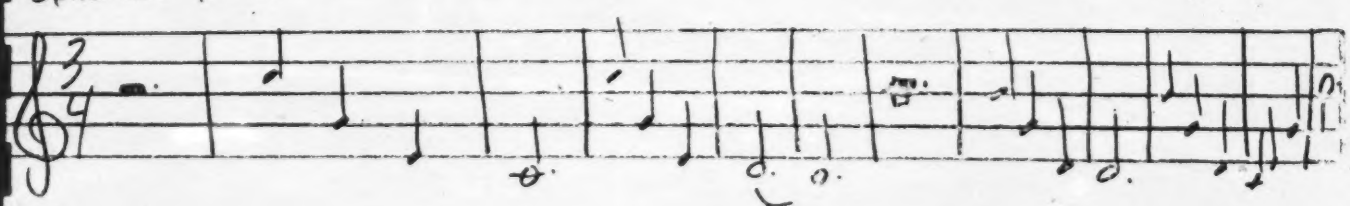


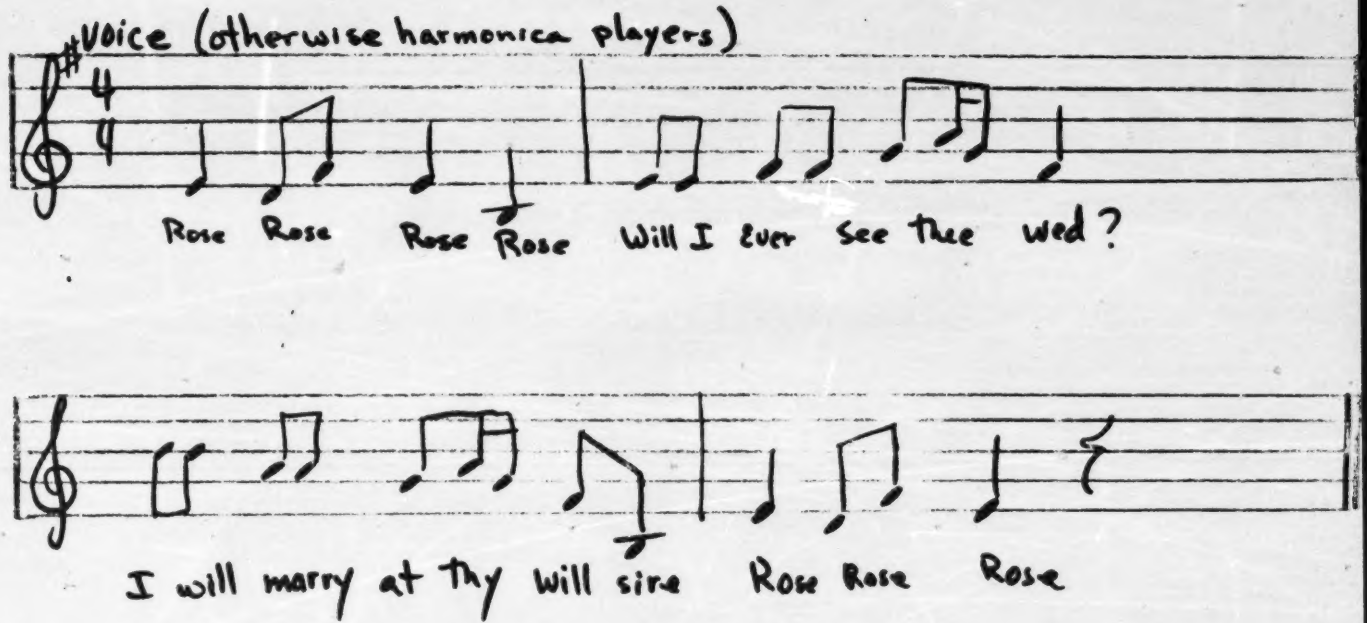
Piano + Guitar

Optional piano

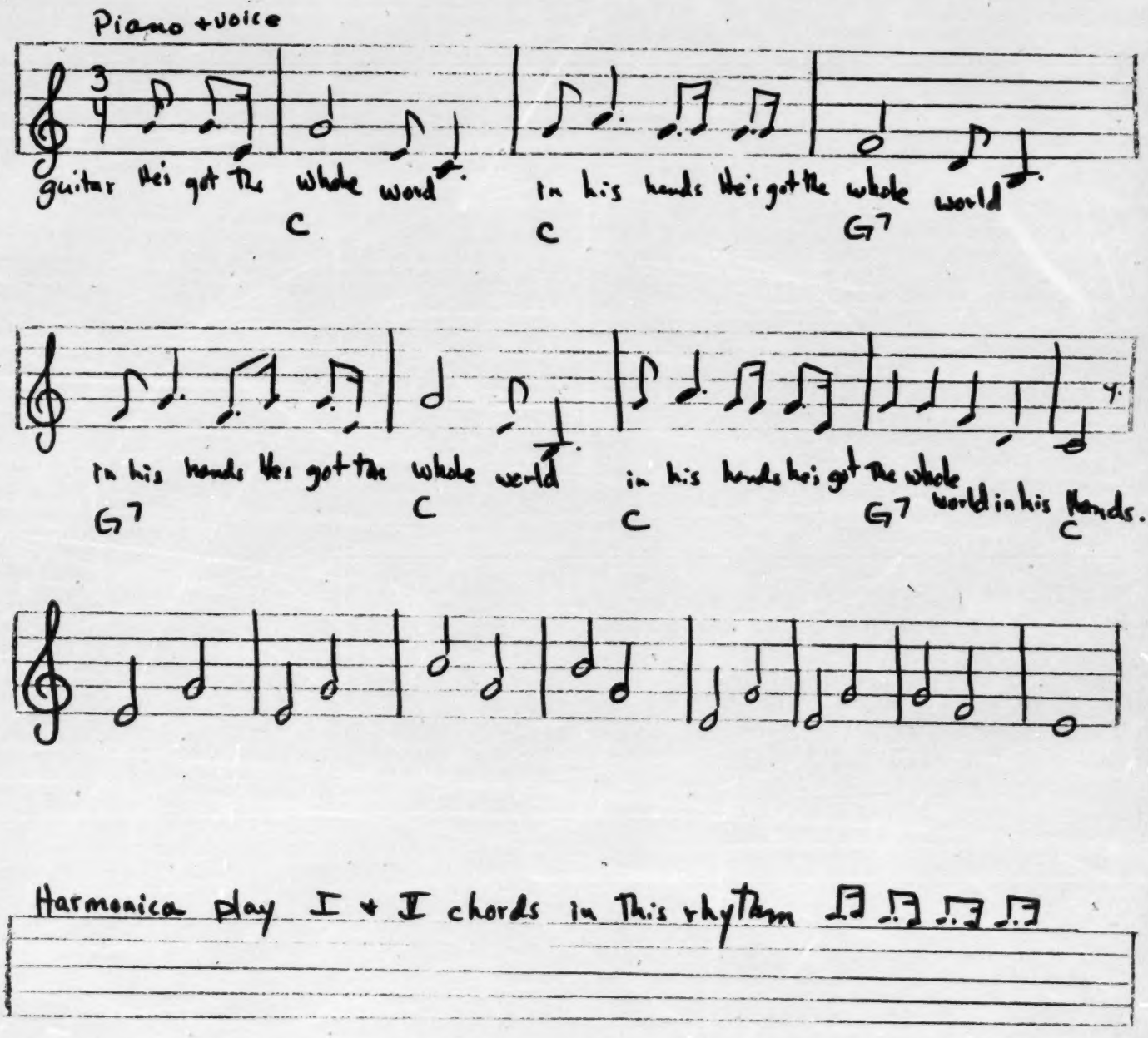


Slow Song

Rose


Voice (otherwise harmonica players)
Rose Rose Rose Rose Will I ever see thee wed?
I will marry at thy will sire Rose Rose Rose
Guitar e minor Throughout Recorder
fine
D.C. al fine
Piano

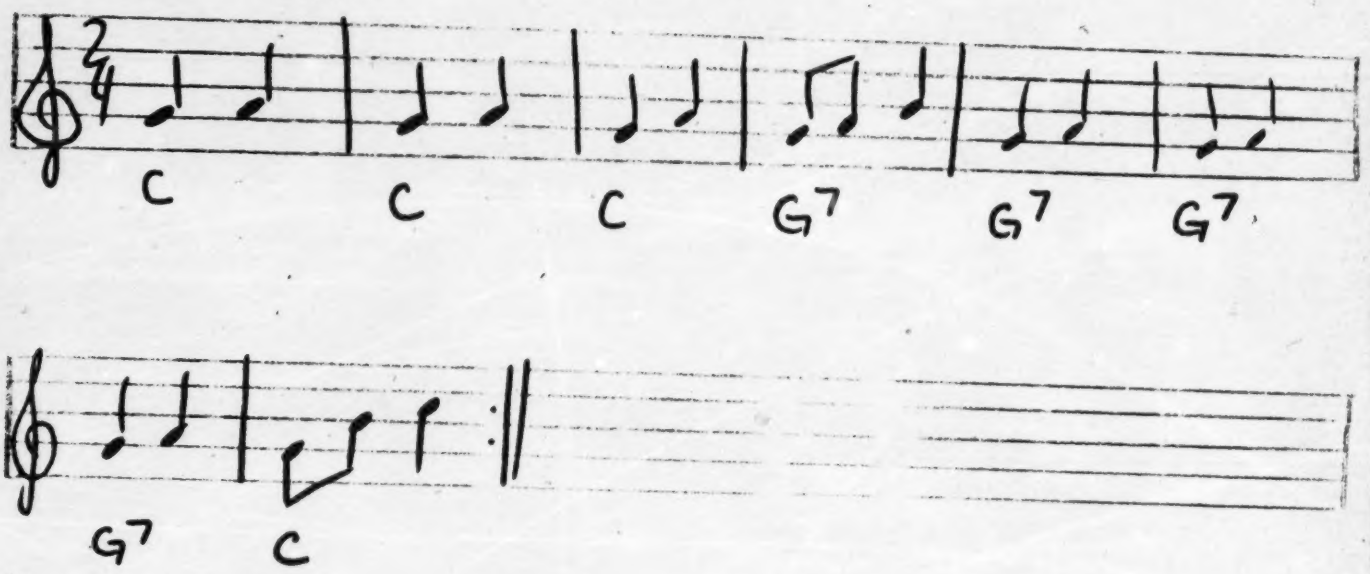
He's Got the Whole World



Appendix XI

Chigger Song

Piano + Guitar



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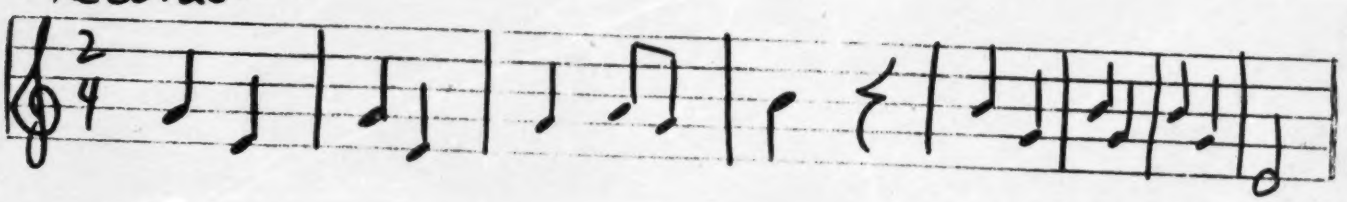
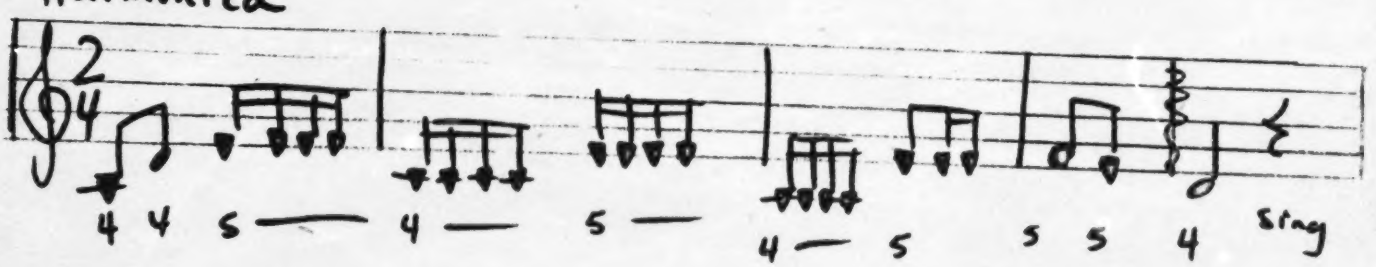


Harmonica



But the bump that he raises just itches like
the blazes + that's where the rub comes in.

Grandma's Closet

Harmonica, voice, guitar chords
oh I looked in Grandma's closet and eek I saw a mouse: and a ---- -and a ---- - etc.
C ——— G ——— C harmonica stop G ——— C —
Piano
Recorder
opt. guitar